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ARMS CONTROL AND NATIONAL SECURITY:
REVEALED THROUGH TWO CASE STUDIES

by

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Arms Control And National Security: Revealed Through Two Case Studies

by

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requirements for the degree of

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ABSTRACT

The task of this research is to explore the relationship between arms control and national security. The author suggests that national security issues must dominate arms control initiatives and that the military command establishment should have an expanded role in shaping current arms control initiatives. The author considers two case studies to analyze this relationship. The first case study involves cruise missiles and reveals how issues such as politics, budgets, military missions, technology, stability and verification can impact on arms control negotiations and national security. The second case study shows the control that the military can and should exert in areas dealing with both arms control and national security interests. Lastly, the author proposes how the balance of arms control and national security should be achieved in the future.

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I. INTRODUCTION

The author's purpose is to explore some of the issues and perspectives that an officer must be conceptually fluent in to be effective and knowledgeable in the arms control arena. The author also intends to demonstrate that the military command establishment should have an expanded role in shaping current arms control initiatives. Three research questions lay the basis for this effort.

1. What factors must the military command establishment recognize and contend with, in order to properly understand and influence arms control proceedings?
2. Do arms control initiatives support U.S. strategic security policies?
3. Does the military command structure have a legitimate interest in and a position to influence arms control initiatives?

An underlying premise of this paper is that there should be an informed military perspective regarding arms control. In reality, there exists numerous arms control perspectives expressed by factions from the nuclear freeze movement to more traditional governmental organizations. The variety of views are best illustrated by looking at some of the more conventional arms control perspectives.

1. The "diplomatic perspective" views arms control negotiations as a process of communication, with an emphasis on problem solving through discussion. There is an effort to keep the dialogue going at all times. Indeed, the proponents of the "diplomatic perspective"

have a philosophy of treating one's opponents more as clients than adversaries.

2. The "legal perspective" views arms control as a subordinate concern. This persuasion believes that world peace will ensue from world law. Thus arms control concerns will naturally be achieved as world law is defined, accepted, and adhered to.
3. The "State Department" perspective views arms control initiatives as a way to relax tensions through negotiations. Here the idea is that one agreement will lead to another. In this process the content of the agreements should also increase in substance.
4. The "strategic planner" perspective views arms control initiatives in terms of how they affect resources and impact on goals and policy.
5. The "military" perspective views arms control initiatives in terms of achieving national security objectives. [Ref. 1]

One could argue that all the perspectives seek national security. They do, but at a price that may ultimately cost the United States the security it seeks. The "legal perspective" has an orientation and fundamental belief in law. The arms control compliance record leaves this theory gravely in doubt. The "State Department" and "diplomatic" views see arms control as a "means" whereby improved relations can be achieved. In essence, these fractions see national security being derived from "better relations". It also leads to a great deal of linkage of issues that may be completely divorced from arms control or national security concerns. Lastly, the "strategic planner" perspective

is one concerned with "after the fact calculations". This leaves only the "military" to act effectively without linkage or other motives in achieving national security goals, through arms control. This of course presupposes that arms control is a means and not an end in and of itself. As described the "military" perspective seems to provide the purest view on arms control issues. It is with that perspective that the author continues this paper.

At a recent symposium of the National Security Affairs Institute, which met to discuss defense planning and arms control, it was concluded:

> That the lack of consensus in arms control and defense planning is an outgrowth of a more basic, potentially debilitating problem - an absence of general agreement on the broad outlines of a coherent national strategy to achieve US security objectives [Ref. 2].

This being the case, the basis of the United States' national security position will be initially introduced followed by a discussion of the original premises of arms control. Once this foundation is laid two case studies will be introduced. A case study concerning the cruise missile development will be used to show how political, military and arms control policies can exhibit a disharmony. This case study also allows for a historical review of the significant agreements of SALT I & II. Next, a case study concerning strategic command, control, and communications (C-cubed) will demonstrate the approach needed to secure the national security of the United States. Both case studies and concluding comments will highlight the parameters that surround present arms control negotiations.

Colin Gray expounded on the foundations of arms control saying that arms control was envisioned to be in complete harmony military initiatives. Thus arms control theory was to be blended with military actions

and be an extension of military strategy in securing national security and peace [Ref. 3].

This harmony of military and arms control issues has in the past been questioned. Alexander Vershbow, expressed the opinion that at times military rationales may be in direct conflict with arms control rationales. He concludes when this happens that arms control rationales should take precedence. He selected as an example of this collision of rationales the case of the cruise missile saying,

> Thus while military and financial rationales for the cruise missiles may be persuasive, from an arms control perspective there can be no justification [Ref. 4].

This intriguing if not disturbing statement shows how far perspectives have changed from the original concept of arms control as a means to support military efforts to secure national security and peace.

The above quote clearly shows the mental distinction often made that separates arms control and military thinking. Such divisiveness can only diminish the United States' effectiveness in securing national security goals. Championing the opposite perspective is the Reagan administration. It has begun the START process, claiming arms control treaties are not sufficient in and of themselves. The Administration has tried to reunite sound military principles with arms control measures, which allow for the accomplishment of United States national security goals. The administration finds this position challenged daily, with increased pressure from certain political and public elements. The pressure seems to originate from traditional wariness of military control and also in the fear that surrounds nuclear warfare and the devastation it can cause.

This situation should be the cause of great concern for U.S. military officers. The military must exercise all legal influences as the guardian of U.S. national security. Those in the service, while charged to carry out the orders of those appointed over them, possess a potential to influence national security interests through strategic programs as well as through strategic command, control and communication (C-cubed) systems.

II. RELATIONSHIP OF ARMS CONTROL AND NATIONAL SECURITY

This chapter will lay a foundation for considering the relationship between arms control and national security. It will define what is currently United States security policy and strategic doctrine. That basis established, the purposes of arms control will be discussed, both in its historic and contemporary context.

A. CURRENT NATIONAL SECURITY POLICY

It must be realized that U.S. national security goals are but a subset of U.S. national interests. It is, however, the basis that supports and defends U.S. interests if threatened from within or without. The Department of Defense is charged to ensure the military is capable of meeting U.S. national security goals. Initially, those goals are centered in a posture aimed at deterring aggression at any level. Should deterrence fail, the military must be prepared to terminate hostilities individually or in concert with U.S. allies, ensuring limited damage to the U.S. and her allies.

This charge of defending U.S. national interests as given to the military must be maintained with consistency. Consistency can be extremely difficult to maintain given the frequency of Presidential elections. A change in administration often leads to the "clean slate" phenomenon in U.S. politics. These fresh perspectives, views, approaches, and programs can have important repercussions affecting the consistency with which the military defends U.S. national interests. The military must not only provide for defense against hostile elements, but has a responsibility to ensure consistency of purpose in the defense realm.

The current Administration has six major national security objectives. These are documented in Secretary of Defense Caspar Weinberger's Annual Report to the Congress Fiscal Year 1988 and include:

1. The ability to safeguard the United States, its forces and allies by deterring aggression and coercion. If deterrence fails then to fight, ultimately ending the conflict on favorable terms to the United States.
2. Encourage and assist our allies in defending themselves.
3. Ensure that the United States has access to critical resources.
4. Where possible reduce the USSR's influence.
5. Prevent military and critical technology transfers to the Soviet Bloc.
6. Pursue equitable and verifiable arms reduction agreements. The Administration holds that compliance is a key concern in the signing of any international agreement. In view of the Soviet record of violations, fully effective verification plays a most vital part of any agreement. [Ref. 5]

These goals do not speak of specific force structures, but serve as principles of policy. These principles however, do indirectly dictate a force structure capable of carrying out the principles. Thus the question must be asked, what level of force should the United States military have? In the report previously cited a guideline measure was given: "Our military strength must not be, nor appear to be

inferior to that of the Soviet Union." [Ref. 5:p. 16] For U.S. forces to be effective they must be tailored by U.S. principles as well with respect to potential enemy forces, specifically those of the Soviet Union and her satellites. A prudent American defense policy cannot rest on theories of Soviet motivation, but must respond to the facts of Soviet policy and military capability. Unfortunately, a net assessment shows the Soviets increasing their conventional and strategic force structures [Ref. 6]. There is a natural division of forces, those being of a conventional nature and those of a strategic nature. This paper does not have the scope to discuss the conventional force structure, thus only strategic forces will be discussed.

It should be noted that United States strategic doctrine envisions sufficient strategic forces to deter conventional and strategic attack against attacks directed at the United States and her allies [Ref. 5:p. 25]. This calls for a doctrine of employment which is currently known as Counterforce (CF) targeting. This, as well as other strategies, will be discussed later in more detail. It is sufficient to say that this doctrine calls for U.S. strategic forces to be survivable and capable of hitting what the United States considers the Soviet leadership values most. It also requires flexibility to be a deterrent in a variety of situations. [Ref. 5:p. 25]

Current Soviet actions in the strategic realm act not only to deter attack but to erode the deterrent character of U.S. strategic forces. They seek to make United States' strategic forces less secure against attack and less effective in response. This will be shown in the case study of the cruise missiles and in a systems discussion of the vulnerability and importance

of the United States C-cubed system. The strategic C-cubed system being

> A less publicized, but perhaps even more important part of our strategic modernization program (which) serves to improve the survivability of our command, control, communications, and intelligence systems. The improved survivability of these systems helps to deter a nuclear attack designed to incapacitate the U.S. National Command Authorities (NCA) and their control over U.S. nuclear forces. [Ref. 5:p. 28]

The above quote shows that the present Administration does not only seek the improvement of weapon systems, that are the cutting edge of United States strategic strike forces. The Administration also seeks progress in supportive programs and doctrinal changes needed to realize U.S. strategic goals. There are great strides being attempted in programs that support strategic doctrine. It must be remembered that strategy is not concerned with the application of force alone but also involves stratagem, that will overcome enemy resistance. The present Administration envisions changes to the basic strategic strategy of the United States. The new proposed strategy is based more on a balanced offensive and defensive doctrine, which is a possibility if the Administration's Strategic Defense Initiative (SDI) becomes a technical and political reality. This topic will be more thoroughly considered later in the paper. Presently it is sufficient to say that, the Administration's stated purpose for SDI is:

> When these efforts come to fruition, we can move away from an almost exclusive reliance on, and attention to, offensive strategic forces. To the extent that defenses render offensive forces ineffective, any temptation the Soviet rulers might feel to use their offensive forces would be overcome, not simply by their calculations about the prospect and effects of our retaliation, but by an assessment that their attack would be unsuccessful to begin with. [Ref. 6:p. 28]

Later, when this initiative will be discussed, the reader will have the background necessary to better

understand the ramifications of the Administration's endorsement of such a concept.

This concludes a concise look at the United States' strategic force structure and the progressive strategic policies and goals being sought by the present Administration. This portion of the paper should allow for an appreciation of current national security issues. This will facilitate comparing strategic security interests with the stated goals of arms control.

B. FOUNDATIONS OF ARMS CONTROL

As listed in the last section, arms control makes a qualified entry into what was listed as the sixth point, of the stated six major national security goals of the present Administration. Not everyone would agree with such a placement. Edward Rowny, a key figure in the United States arms control delegation of the SALT era, has said in retrospect:

> You note I have had little to say about arms control. I have done this because my six and one-half years with SALT have led me to the conclusion that we have put too much emphasis on the control of arms and too little on the provisions of arms. It has been a profound mistake for the United States to make arms control the centerpiece of its foreign policy. The Soviet Union has not done so and has profited from our folly. The Soviets have their priorities straight. First, they determine their national objectives and foreign policy goals. Then they develop and deploy the forces needed to carry out these objectives and goals. Finally, and only in third priority, they see where and if controls or limitation of arms can be accepted which fit into this scheme. [Ref. 2:p. 52]

This perspective should weigh heavily in military minds, as the protectors of the profession of arms. At a recent Hoover Institute symposium, the position was put forward that the Joint Chiefs of Staff (JCS) should handle arms control issues for the United States. This might facilitate the classical harmony of

military doctrine and arms control positions as initially envisioned. [Ref. 2:p. 8]

Many would argue that the present Administration would agree with Mr Rowny's philosophy of reducing the significance of arms control discussions. If this is true then why does arms control initiatives occupy one of the six major national security goals of the current Administration?

The answer may be found in political necessity and as such the Administration has gone to great lengths to describe conditions that would allow for signing future arms control agreements. Consequently, the Administration's current Intermediate Nuclear Forces (INF) arms control initiatives must be viewed as in accordance with the Administration's stated pre-conditions of "equitable and verifiable" agreements "that will enhance deterrence and stability at lower force levels". [Ref. 5:pp. 42, 62]

There is a definite belief that the United States has at times put aims of achieving an agreement ahead of the terms of the agreement itself. This being done largely for political advantage or to answer political pressure. The Reagan Administration has leveled such accusations when discussing the "flawed nature" of the SALT I & II agreements. The following statement summarizes the Administration's views.

> We have no doubt whatever that it is far better to wait for real reductions rather than seek easy political acclaim by signing arms agreements [Ref. 5:p. 63].

The SALT arms agreements in the administration's eyes were

> ...purported "arms control agreements" (which) actually legitimized the buildup in Soviet capabilities. The Soviets counted on exploiting America's faith in the arms control process, and our deep desire to reduce the risk of war, to inhibit a U.S. response to the shift in the balance of power. In addition, the Soviets were able to forestall a U.S. response to their treaty

> noncompliance by veiling their activities in secrecy, then counting on our domestic politics and our public opinion to keep the issues clouded in ambiguity for years. [Ref. 5:p. 62]

In discussing arms control it is important not to have any illusions about the motives or the stakes involved. One of the most poignant and concise statements the author has found concerning arms control is the following:

> Any discussion of arms control is a discussion of possible U.S.-Soviet cooperation regarding (strategic) systems and procedures that exist in the first place because of the mistrust between the two countries" [Ref. 7].

The above quote points to the dilemma of seeking agreement in arms control between two nations locked in superpower conflict a situation which has given birth, cradled, and natured all nuclear weapons as they exist today. Certainly there exists a continual air of mistrust between these powers as evidenced in reports of non-compliance, other public statements, and arms control bargaining positions. If this is the case, why have arms control at all? While there exist numerous listings and explanations concerning what arms control seeks to accomplish, most of these can be compressed to a simple list such as follows:

1. Minimize the risk of nuclear war;
2. Reduce destruction if war does break out; and
3. Reduce the cost of preparing for and conducting nuclear warfare.

The above listing, in its generic form, seems to support national security objectives, as they have been reviewed previously. Point 1: minimizing the risk of nuclear war correlates with the national security objective of deterring aggression. Point 2: reduce destruction if war does break out is in harmony with U.S. security goals of ending conflicts in favorable

terms to the U.S. and ensuring access to vital resources. Point 3: reducing the cost of preparing for and conducting nuclear war can be paired with the U.S.' interest of verifiable arms reductions. This correlation of arms control aims and U.S. national security goals is by nature one sided. Soviet military aims matched against the arms control aims would be one sided, as well. It is only when arms control aims are taken as paramount that negotiated outcomes may not support military policies. Arms control was initially envisioned to be in harmony with military needs. Today however, the application of arms control principles in the negotiation process has often seen them diluted and distorted from a national security perspective. Secretary of Defense Caspar Weinberger has expressed views saying arms control agreements should diminish the risks of war and help reduce the threat to U.S. security and that of U.S. allies. He went on to say that cosmetic agreements that merely legitimize a further buildup of Soviet military power are not in the U.S. national interest. [Ref. 8] Sorrels and other contemporary arms control authors often point out that arms control objectives which harmonize with a country's military doctrine are at times served best by unilateral measures as much as arms control agreements. There is recognition that arms control agreements may at times be detrimental to national security objectives and certain arms control objectives as well. Thus, they warn that arms control should never become a means unto itself. Fundamental objectives such as minimizing war, reducing the destruction of war should it erupt, reducing costs of defense and arms competition, enhancing stability, and discouraging proliferation all

must be calculated to and in harmony with national security goals. [Ref. 9]

In the coming pages, and especially in the cruise missile case study, these issues will be addressed. What is clear is when President Kennedy created the Arms Control and Disarmament Agency in September 1961, there was no thought that national security goals and arms control could be out of harmony with each another.

It is a hypothesis of the author that arms control through the SALT era is a prime example of this disunity. Hopefully, an analysis of that era may make a difference in future decisions and ultimately the security of the United States. The United States can not afford to make similar policy errors during current arms control negotiations, such as regarding the Strategic Defense Initiative.

Indeed, the principle objective of nation's arms control policy is to promote stability and prevent a successful attack. Today, the most common result of arms control is not enhanced stability, but merely a document which expresses the "ground truth" strength of the superpowers. An example of this idea is found in Cold Dawn; The Story of SALT where John Newhouse makes this analysis of the SALT negotiations. He states

> The talks were launched, not from a common impulse to reduce armaments, but from a mutual need to solemnize the parity principle -- or, put differently, to establish an acceptance by each side of the other's ability to inflict unacceptable retribution in response to a nuclear attack [Ref. 10].

Thus, the talks merely registered reality rather than proceeding with trying to secure the ultimate purposes of arms control, specifically reducing the risk of nuclear war. A stronger quote which illustrates the illusiveness of strategic stability in arms control

agreements is given by William R. Graham in Arms Control: Myth Versus Reality when he said

> Arms control is at best indifferent to matters of strategic stability. With good will and careful planning on the part of all parties to an agreement, arms control can increase strategic stability. However, without such efforts, it is also quite possible that commitments made in the name of arms control could decrease strategic stability. Since the question of the benefits of arms control is still not fully resolved after two decades of serious attempts to fulfill its promises, it would be prudent for the United States to consider action to enhance its control authority in potentially unstable or otherwise undesirable situations, without adding to instability....For arms control measures to contribute to strategic stability, the United States should first look to those actions that would contribute to strategic stability even in absence of specific arms control commitments. [Ref.11]

In the following chapters specific questions and perspectives that surround arms control initiatives will be explored, revealing the strategic environment.

III. CRUISE MISSILE: A CASE STUDY

The development of the cruise missile is presented below in a case study format. This will allow for a coherent review of facets of arms control as they were actually involved in the development process. These facets include

1. A discussion of the technology that supported the development of the cruise missile.
2. An analysis of the strategy and defense doctrine utilizing the cruise missile.
3. An introduction of the variants of cruise missiles and how the variants were handled as an arms control issues.
4. The politics and bureaucratic influences which were applied to the development and deployment of the weapon.
5. The military significance of the cruise missile.
6. A discussion of the SALT I and II agreements as they affected the cruise missile.
7. A discussion of the stability and verification issues as revealed by a discussion of the cruise missile.

A discussion of subsequent chapters will then expand on these and other principles and contemporary issues of arms control, with the intent of making current observations and futuristic assumptions.

The U.S. Cruise Missile programs in their development and deployment take on a great deal more than just their particular implications for arms

control. The study of this class of weapon systems clearly has lessons that have impact on how current arms control issues can and should be viewed. The cruise missile is a classic case study representing the full spectrum of considerations, policy decisions and negotiations born of a technologically advanced strategic weapon system.

A. CRUISE MISSILE DEVELOPMENT

The cruise missile had it's historic beginnings in World War II. It experienced a rebirth in the U.S. as technological advances in the early 1970's brought the concept of cruise missiles into modern strategic arsenals. These technologies developed out of the Vietnam War. The war revealed the need for remote-piloted vehicles in the midst of growing air defense systems and an increasingly lethal electronic environment. [Ref. 12]

During the Kennedy and Johnson Administrations the U.S. induced NATO to adopt a flexible defense doctrine one which would meet a conventional attack with conventional defense measures. This, of necessity, called for a greater NATO commitment to conventional forces, and hopefully for the U.S., a policy that could avoid an automatic strategic conflict between the superpowers. [Ref. 13] Cruise missiles had desirable technical characteristics and after winning a favorable deployment vote by the NATO Defense Ministers the stage was set for full development of the cruise missile.

Today, cruise missiles are found in three main variants, the Sub Launched Cruise Missile (SLCM), the Ground Launched Cruise Missile (GLCM), and the Air Launched Cruise Missile (ALCM). The systems development occurred at the conclusions of SALT I, where it was not a topic of discussion. Cruise

missiles, however, were a hotly contested issue during SALT II and will of necessity be addressed in any future strategic arms proposals, as there are still numerous unresolved issues surrounding them. The reason for the intensity of debate will be explained later in the paper.

The systems development phase came at a time when U.S. nuclear strategy as regards targeting was shifting from a mutual assured destruction (MAD) concept to a counterforce (CF) posture. It was clear that cruise missiles had the power to affect this change in nuclear strategy, as well as contribute to United States national security. The reason for this was that cruise missiles promised to a very affordable, versatile, and effective weapons. The development of cruise missiles also promised a more favorable balance of posture between the superpowers and their strategic arsenals. This, in theory, would lead to a more stable environment and deterrence posture. [Ref. 14] This is a simplistic view. Other parameters had to be taken into account such as stability, survivability, capability, verification, etc. The full impact of this statement and the targeting strategies will be explained later. These realities, and the cruise missiles' ability to affect the conventional, as well as strategic defense, also supports its selection as a basis to discuss the various aspects of arms control parameters. Parameters that must be juggled, weighed and evaluated to achieve national strategic goals.

B. POLITICS / BUREAUCRACIES

Richard K. Betts, points out that military strategy cannot be devised independent of political considerations, for weapons influence politics and vice versa, for they affect a large portion of society and

thus affect many constituencies. He argues that while procurement of weapon systems should be consistent with military operational and strategic doctrine, the cruise missile as a multi-purpose weapon, was dominated by political factors in its development. [Ref. 15]

Debate has raged for years concerning the development of cruise missiles. The controversy (extensively developed in The Cruise Missile: Bargaining Chip or Defense Bargain [Ref. 12]) is whether or not cruise missiles were developed as an arms control bargaining chip or as a defense bargain. The term bargaining chip refers generally to two classes of weapon systems. The first class are weapon systems developed merely to show strength, but are ultimately destined to be bartered away at the bargaining table for concessions from the opponent. The Safeguard Anti-ballistic Missile system can be classified as such. It was a workable system but the United States wanted to trade away a lead in Anti-ballistic missile (ABM) systems for the signing of the ABM treaty with the Soviets.

The other class of weapons often found in the bargaining chip category are aging systems that would have probably been retired unilaterally from a force's strategic arsenal, except for their utility in making the other side concede some point at the bargaining table.

A defense bargain is a relative term relating to how much security or strength a weapon system has, based against the dollar cost of the system and its maintenance. One contemporary arms control writer, Ron Huisken, indicates that cruise missiles were both a bargaining chip and a defense bargain depending on perspectives. The initial push for cruise missiles

came from then Secretary of Defense Melvin Laird, and Director of Defense Research and Engineering, John Foster Jr.. The former wanted to show the Soviets the U.S. resolve to match their arms build up, while the latter wanted a system that might frustrate Soviet SAM defenses.

With the possible exception of the Navy, the military establishment did not want cruise missiles, because they were afraid of what they would have to give up in other programs. The Air Force, for example, felt cruise missiles threatened the B-1 bomber project, a concern that was later verified in the Carter Administration. All the services were concerned about budget impacts for a weapon system that initially had no mission. [Ref. 16]

Other contemporary authors conclude that the military was not only considering budget aspects in their initial position on the cruise missile, but suggest that the military is like any other bureaucracy in resisting radical change. It was only political intervention that spurred the services on from the initial rejection of the cruise missile concept.

Within the Army, the cruise missile clearly was perceived as a threat to the Army's taxed Vietnam War budget. The Army launched a campaign to gather political influence, using commitments in Vietnam as a reason that it should not have to develop the GLCM. The Army was successful in its fight, so the Air Force became tasked to develop and deploy both the GLCM and the ALCM.

The above example clearly shows that weapons that share a limelight in the arms control arena are not only issues of international politics but may have strong domestic political implications as well. Where

these two arenas of politics collide there can be compromises made that represent the lowest spectrum of agreement. Often, in a democratic society these watered down compromises, as they deal with arms control, fail to support arms control or national security objectives and at the same time serves no political philosophy well.

C. BUDGET CONSIDERATIONS

The political debate often is carried by the power of the purse, and any analysis of a strategic weapon must consider budget factors.

Congress' ability to direct American foreign and defense policy by the power of the purse is being used more frequently, much to the displeasure of the executive branch. As such the military finds that it must not only respond to the Commander and Chief residing in the executive branch, but now more than ever must lobby and convince Congress of the wisdom of programs to ensure proper funding. [Ref. 15:p. 406] The cruise missile from its birth seemed a cheap affordable method of obtaining a powerful weapon in substantial quantities. It has, however, had to prove it's monetary merit many times on the floors of Congress. The cruise missiles true cost, as Betts points out, still cannot be calculated, because the versatility of the weapon destabilized the traditional structure of the arms control arena and its full repercussions are as yet unknown.

Arms control has as a goal stabilizing security at lower cost levels than if unconstrained arms deployments continued. Betts points out that while some weapons meet certain budget and short-term military options, their presence can later alter the existing status quo, leading to increased spending

later on. Betts cites the example of multiple independently targetable reentry vehicles (MIRVs) as a prime example of the failure to judge interlocking military and political opportunity costs as arms control negotiations proceeded. He theorizes that cruise missiles may have a similar impact. [Ref. 14:pp. 10-11] Presently, though initial projections of the value of cruise missiles were confused, both the military and political factions have transitioned into an ultimately realistic concept of the system's potential, and the cruise missile's impact on arms control.

Another way to project the costs of a system is found in alternate weaponry that would have to be used if it were not available. The easiest contrast can be found in the example of manned aircraft having to proceed to the target, drop its ordinance and try to make it back, through enemy as well as friendly lines without the stand-off-capability allowed by ALCMs. Loss rates are not easily identifiable but considering pilot training costs, the "value" of a life, and the expense of modern aircraft, cruise missiles may have economic significance. However, the introduction of cruise missiles may not allow for a reduction in airframes which may be diverted to fill other tactical roles. Cruise missiles also have to be judged against other missiles and rockets capable of comparable target strikes.

To reduce costs a great deal of effort has gone into ensuring commonality of basic parts. Even mergers of testing and evaluation have been mandated to cut costs. It is noteworthy, as previously stated, that the military services initially resisted the development of cruise missiles. This position was generally taken as

the services perceived a budgetary threat to programs that were already planned and had stated missions.

Cruise missile programs were being fought even up into the 1980s when the Navy and the Air Force fought to drop the Medium Range Air to Surface Missile (MRASM) development [Ref. 9:p. 2]. The MRASM was intended to take out airports and other large scale soft targets. The services opposition centered on budgetary as well as operational concerns. Today, the question of how many varieties of cruise missiles should be developed impacts on the economy of scale that cruise missiles promise. The budgetary concerns dealing with cruise missiles do not end with the missile itself. It also must include the costs of providing a suitable launch platform and support base. Congressional testimony held that the cruise missile would be a true defense bargain, as the following quote asserts:

> To put it in the simplest terms, (considering) all of the threats (to cruise missiles) we are able to anticipate the Soviets being able to field during the eighties, we believe we can field an effective counter (developed internally to the cruise missile) to that threat sooner than they can field the threat, and dramatically cheaper....it's like a four to five to one tradeoff. [Ref. 9:p. 11]

Budgeting is a factor considered in the arms control community. All government agencies that have dealings related to existing arms control agreements report budget figures to the Arms Control and Disarmament Agency (ACDA). ACDA in turn reports to the Bureau of Budget twice a year on all governmental expenditures relating to arms control or strategic activities. Thus ACDA has at its disposal the latest information that from a budgetary aspect speaks for or against a system.

D. MILITARY SIGNIFICANCE

It has been stated that initially the cruise missile program was one without a military mission. In the this section the military significance of the cruise missile will be discussed. One should be aware of how with the passage of time funding, doctrine, mission, and "necessity" may grow. Consequently, the statement that the cruise missile was one without a military mission might be overstated. Possibly, a more precise statement is that the cruise missiles' impact and mission were not fully realized initially even by the services that would later rely on them.

The following criteria is set forth to help determine the usefulness of a newly developed offensive strategic system to support the triad. Ideally the new system would have:

1. High prelaunch survivability.
2. Defense penetration capability.
3. The ability to be readily assimilated within the present triad structure.
4. The ability to strike targets in a manner that would greatly affect the Soviet defense posturing. The Soviets would then have to utilize great resources in trying to offset the presence of the new system.
5. The ability to close gaps in target coverage of existing triad weapon systems.
6. The ability to easily interface with and be supported by the strategic command, control and communications system, allowing for flexible response. [Ref. 15:p. 38]

The cruise missile offered at least marginal productivity in all of these areas. Some areas are worth noting. Soviet military doctrine depends upon reducing the uncertainties of war because of the strict control they try to exert over their committed forces. Cruise missiles add flexibility to U.S. strategic options and varied employment techniques, and therefore create uncertainty for the Soviets. William H. Kincade in an article described how the power of the cruise missile could be multiplied by other factors. He said:

> ...associated with these new weapons are broad advances in command and control facilities--the central nervous system of modern warfare--that will substantially improve weapon performance but also expand the range of crucial and vulnerable targets [Ref. 15:p. 315].

The military role of the cruise missile is set in a strategic second-strike role, primarily due to the system's slow speed. Thus, cruise missiles, if survivability can be guaranteed, have the attributes needed to be an important part of the strategic reserve forces. Concerning survivability, Sorrels quotes congressional testimony which attests to the survivability of the cruise missile in the following excerpt:

> Generally, the results from the flight tests support past assessments of cruise missile survivability. The cruise is difficult to detect and track, both by radars and infrared sensors, as well as optical and acoustical means. [Ref. 9:p. 11]

Deployed on bombers, the ALCM adds to the penetration of Soviet air defenses. Cruise missile accuracies conform to targeting options required of counterforce targeting. The addition of cruise missiles to the U.S. naval arsenal has added range and offensive power to in-service vessels [Ref. 17].

Cruise missiles at sea were greatly strengthened by convictions that they could serve as a strategic reserve force.

It must also be understood that cruise missiles were in development when mutual assured destruction (MAD) was the basis of U.S. nuclear policy. MAD requires the ability to launch a retaliatory nuclear strike capable of inflicting unacceptable damage to Soviet Union's economy and population. This later officially transitioned into the counterforce targeting doctrine. The counterforce strategy requires a flexible range of appropriate responses to external threats, ultimately requiring a nuclear retaliatory strike capability centered in a counterforce targeting concept. The targeting once again ensures unacceptable damage in that the enemy is prevented from effectively carrying out his ultimate military designs. Arms control as viewed from SALT I and SALT II agreements do not support or reflect the new counterforce strategic targeting doctrine developed between these two periods. The cruise missile therefore can not just be evaluated in terms of arms control agreements, (SALT I & SALT II) but must also be considered in regards to how it supports national security. This is especially true as our national security posture changed between SALT I and SALT II.

The important concept to grasp is that while United States strategic doctrine was officially changing from mutually assured destruction to a counterforce doctrine, arms control agreements were being concluded based on a MAD concept. A Congressional Budget Office report commented that the superceded doctrinal concept of MAD had transitioned to a point where

> The United States is currently engaged in substantial expansion and modernization of the

nation's strategic nuclear forces. Those efforts have been accompanied by a revolution of military doctrine that would govern use of nuclear weapons in the event of attack. That evolving new doctrine implies that Soviet aggression can no longer be deterred by a U.S. arsenal that is only capable of prompt and large-scale retaliation, but must also be prepared to sustain nuclear combat of various scales and durations. [Ref. 18]

The following classical quote from Newhouse's book, Cold Dawn: The Story of SALT, clearly shows that SALT was based on MAD.

> The Russians...are in the talks partly because they have caught up with the United States in strategic weapons. Their efforts, after the Cuban missile trauma, to match the Americans by achieving a balanced second-strike force have succeeded. Now, the Soviet leaders, like America's, hope to head off another major offensive weapons cycle. They know that to succeed they must inhibit ballistic-missile defense, an insight acquired from the Americans. Baldly, this means that defending people is the most troublesome of all strategic options, for stability demands that each of the two societies stand wholly exposed to the destructive power of the other. [Ref. 10:p. 3]

An oversimplified table of the requirements of MAD and the results of the SALT I and SALT II negotiations demonstrates how these agreements followed through in a MAD mind set instead of the CF strategy the military was tasked to employ.

Requirements of Assured Destruction	SALT I & II Provisions
1. No area population defense allowed	1. ABM restricted missile defense / No camouflaging of weapon sites
2. MIRVs, as they would:	2. MIRVs not restricted
a. overcome enemy defenses	
b. promote unacceptable damage	
3. Large number of warheads	3. No restriction on warheads enacted

Requirements of Assured Destruction	SALT I & II Provisions
4. Requires only a finite number of survivable launchers	4. The language of SALT I & II places a finite limit on the numbers of launchers
5. Developments in Counterforce weapons should be restricted	5. SALT sought to restrict the development and deployment of new missile systems
6. Finite amount of throw weight desired as to meet destruction needs without allowing for "overkill".	6. Greatly discussed no agreement made [Ref.19]

It seems that arms control negotiations stayed with the MAD concept because it was a cheaper economic strategy, it was easier, and took fewer missiles to hold the USSR populace hostage then to try target and destroy military targets, although the strategic policy of the United States was shifted toward counterforce targeting. Indeed some of the requirements of counterforce targeting are accuracy, more flexible targetable systems, which respond to an improved command, control, and communication system [Ref. 20]. A review of SALT efforts finds these topics relatively undiscussed in substance. The Soviets may have been more aware of the United States' own doctrine as it sought in the protocol associated with SALT II, to greatly restrict cruise missiles a system capable of great accuracy, flexibility and able to be retargeted quickly.

Some writers have argued that cruise missiles did support MAD but Betts, in his exhaustive work, argues that cruise missiles in fact did not contribute to MAD. Betts concludes that the triad was not significantly threatened to not be reliable in delivering a retaliatory assured destruction strike. It is true that the development of ALCMs which were not merely replacements for other existing weapons, though they helped compensate for what was feared to be a decreasing ability of the U.S. bomber force to penetrate to their targets. [Ref. 14:p. 12] Consequently cruise missile capabilities were not required to support MAD. There were other weapons that already served those purposes. The cruise missiles were desired to augment and fill in strategic targeting voids required by a Counterforce doctrine. Little in the arms control negotiations of that era reflected the requirements of a counterforce strategic posture. MAD was still the basis used to negotiate in the SALT talks and evaluate weapons systems such as the cruise missile. This, at a time when the Defense Department was called upon to ensure counterforce targeting and was making use of cruise missile technology to meet this targeting mission and other requirements, dictated by Presidential Directive 59.

This directive stressed a traditional war-fighting approach to the design of strategic nuclear forces. This required, as a matter of policy, sufficient forces and plans that would lead to the convincing of the Soviets that in an outbreak of nuclear war they could never obtain victory. [Ref. 21]

The system's accuracy, hard target kill capacity, targetable range, plus its fire and forget mode made the system an ideal counterforce weapon. The cruise

missile's utility seemed limited only to the extent that command and control facilities and delivery platforms could not be guaranteed to be intact after absorbing a first strike.

There was some concern for whether or not the U.S. bomber force could achieve airborne status in a Soviet first strike. If survivable, cruise missiles had great potential for increasing the number of warheads needed to achieve desired results on Soviet targets. Counterforce weapons have a common characteristic if not a requirement of fast flight times. In the case of cruise missiles its long flight time was viewed as a uniquely beneficial characteristic. Secretary of Defense Brown stated:

> I am certain that the cruise missile will improve the world's perception of the potency of our forces, not only by maintaining strategic force parity with the Soviets Union, but also by retaining a clear technological superiority. And...we are doing all this with a weapon that because of its long flight time, does not threaten a first capability. [Ref. 22]

Cruise missiles substantially increased the number of warheads available for targeting and promised ranges that would ensure delivery to designated targets. This became especially important as strategists looked for a weapon to deliver a hard-target kill capability. The weapon capability of penetration is dramatically increased as they are targeted in sufficient numbers to overwhelm air defense targeting and detection capabilities.

Cruise missiles promised that the mid-1970s Nixon Administration doctrine of strategic sufficiency could be met in a concept of essential equivalence by use of cruise missiles to offset Soviet strength in other weapon systems. [Ref. 12:p. 20]. The missile systems became increasingly important when Secretary of Defense

Schlesinger signaled a strategic change in concept and targeting in January of 1975. Schlesinger was quoted as follows:

> To a large extent the American doctrinal position has been wrapped around something called assured destruction which implies a tendency to target Soviet cities initially and massively and that this is the principal option that a President would have. It is our intention that this not be the only option and possibly not the principal option. [Ref. 12:p. 20]

These systems promised to prolong existing heavy bomber capabilities of the B-52 until a new generation of bombers would be approved for deployment. Consequently, the cruise missile, in an era where MAD was still being discussed at the conference table, filled the counterforce role for the military as current national security doctrine called for. A large part of this proper strategic development came out of the physical and technical aspects of the cruise missile.

This era started a long and lasting debate on whether or not United States national security policy and its arms control policies are consistent and mutually beneficial. In the case of the cruise missile they were not. Militarily the cruise missile promised to greatly enhance national security needs. Arms control initiatives as will be shown later in this case study limited their full potential.

E. TECHNOLOGY

The cruise missile has been cursed as being an illusive entity to describe and control at the bargaining table. Roger P. Labrie argues that not all technology developments need threaten arms control. Technology that makes strategic arms less vulnerable can be good. Technologies that helps verification and

technology that reduces the risk of accidents are also desirable. [Ref. 23]

A cruise missile is by definition an unmanned, air-breathing expendable vehicle programmed to deliver an explosive charge [Ref. 14:pp. 3-5]. The normal trajectory is very low and, initially sub-sonic. Presently, there are attempts to increase it's speed and range. As stated earlier, the cruise missile technology is really a composite of various technologies that had matured early in the 1970s which made the cruise missile viable. The U.S. laid to rest an earlier cruise missile program in the 1950s after dismal operational results. The technologies available in this new initiative were: small turbofan engines now being replaced by ramjets or hybrid models of both technologies, small high-yield warheads, advanced navigational and mapping aids, and airframe developments.

These promised to deliver a powerful weapon at an affordable price. Cruise missiles have enormous versatility in their deployment, range and the payloads. Cruise missiles can be launched from virtually any launch platform. The cruise missile has impressive range capabilities and can carry a conventional or nuclear payload. The low and zig-zag trajectory promised to frustrate detection and negate portions of the Soviets advanced air defenses.

Initial proponents for the cruise missile had tactical and strategic rationales in mind, though it took some time for these ideas to be transformed into operational doctrine [Ref. 14:p. 8]. This case existed, because initially the cruise missile was pushed by civilian proponents over concerns expressed by the military establishment. Thus the opportunities

cruise missiles presented to the military establishment were not immediately exploited as discussed in Section D: Military Significance. The technology of the cruise missile was later developed to meet U.S. strategic interests. Thus the cruise missile was a weapon system developed in an operational vacuum, as it initially advanced without a concrete use or purpose. While this is not unheard of in weapon procurement, it reveals why the cruise missile had a progressively larger role in arms control negotiations, as both the U.S. military and the Soviets realized it's real weapon potential.

It is not so much that the cruise missile is so technically advanced but that it has a tremendous potential to be cheaply "product improved" to meet new threats. The cruise missile has a built in capacity to respond to threat changes with faster innovation and response times than most systems because of its simplicity of design. Consequently, cruise missiles pose a potent and adaptable weapon capable of meeting armament needs, even with possible use on the "stealth" bomber.

The discussion above shows that national security is not merely a political question nor a technical issue alone. The cruise missile was born out of technology, given life by the political process, and adapted by the military. Thus, technology creates the "necessary", not the "sufficient" condition to deploy.

The lesson to derive is an appreciation that feasible weapon technology must gain political support, evidenced in funding and then be able to fill a doctrinal role in the military before deployment can be anticipated. Any shortfall in any of these areas may cause the demise of the weapon program. This integration of factors should be at the forefront of

any discussion of new strategic programs being discussed, such as SDI. Once a system is deployed the ultimate test is whether or not the stability of deterrence is enhanced or significant military advantage has been gained.

F. STABILITY

Strategic instability is more a function of one's vulnerability than the accuracy of one's missiles. Thus as U.S. interests concluded that the procurement and deployment of cruise missiles decreased U.S. vulnerability consequently, strategic stability seemed assured. In fact, arms control and deterrent strategy, if acting in harmony, are based on the same factor, that of stability. [Ref. 8:p. 3]

Weapons and agreements which correct growing vulnerabilities in our strategic forces, provide invulnerability for our strategic reserve, and reduce conflict escalation, and improve the offensive capability of the United States general purpose forces, assure a greater degree of stability in relationship to the Soviets.

Stability in the international arena really has two components. There is crisis stability and long term arms race stability. Crisis stability can be defined as the situation where neither superpower has incentive to launch a preemptive first-strike. This incentive rests in terms of perceived weakness of its own forces or concerns that a retaliatory strike of unacceptable damage would be inflicted by the attacked foe. Long term stability can be found in the perception that neither superpower feels the necessity to undertake further arms development in order to not be found at a nuclear disadvantage in relation to the other superpower.

At the time of the cruise missile development the U.S. perceived that the Soviets had quantitative leads in many areas of strategic importance, most noticeably in ICBMs. The U.S. also felt that U.S. ICBMs were increasingly vulnerable to technological advances, that made Soviet targeting much more accurate. Cruise missiles made for a more stable environment in the survivability and capability of the triad based on the systems targeting and accuracy traits.

The cruise missile, however, introduced some destabilizing influences in the arms control arena by the problems it created in weapon system verification. Cruise missiles allowed for various targeting postures, and also allowed for escalation control and for a more tailored and flexible response than most weapon systems. Complicating this flexibility is that the cruise missile can have either a conventional or nuclear payload. Soviets observing incoming cruise missiles are now faced with the dilemma of how to determine whether they are faced with a conventional or a nuclear attack. [Ref. 9:pp. 148-154] The drawback to the cruise missile was most apparent in it's verification aspect. This had always been an arms control concern for the U.S., but was dropped, if for no other reason, than cruise missiles gave the U.S. a quick strategic fix to a perceived strategic imbalance between superpowers. Huisken offers another rational. He says the U.S. had recognized from the outset, and was actually prompted to develop cruise missiles, since the Soviets had cruise missiles with strategic potential. This was done over the objections of some that thought there would be considerable verification problems that could never be covered by or be accountable to SALT type agreements.

[Ref. 13:pp. 48-50] The aspect of verification will be fully developed in the next section.

G. VERIFICATION

One of the biggest arms control headaches occurred around the verification of cruise missiles as mentioned above. Verification of cruise missile agreements was extremely difficult as national technical means were not sufficient in all cases to achieve a high degree of verification. The variety of platforms, and the fact that a cruise missile may be a conventional or nuclear weapon with no outside revealing features presents a complicated problem indeed. Not only has payload been an issue, but verifying ranges poses similar. There exists a potential tradeoff of payload, which allows speeds that can enhance the first-strike capability of the cruise missile. [Ref. 12:p. ix] Such speeds would allow targeting cruise missiles with their great accuracy against Soviet ICBM fields denying any reload capacity, and possibly some initial launches of Soviet ICBMs. Testing for cruise missiles can largely be done in a lab environment or through analysis of tests designed not to reveal the true parameters, performance or other characteristic of the missile to hostile elements. Since external inspection, noting the launch platform, and monitoring test flight constituted the core on national technical means it was the U.S. view

> ...that verification difficulties would probably permanently exclude cruise missiles from accountability in SALT (this view) was not shared by the Soviet Union. The latter country's unswerving determination to have U.S. cruise missiles constrained by SALT led to the undermining of the main organizing principle on which the negotiations had been based, namely, the ability to identify a class of weapons in terms of its (strategic) function. [Ref. 22:p. 190]

Cruise missiles, by virtue of their small cross section, posed special tracking problems. Just how all

these issues were handled in SALT I and II will be shown in a discussion of the talks.

H. THE SALT ENVIRONMENT

A common criticism of SALT I is that it was supposed to halt the growth of Soviet strategic forces, especially ICBMs. SALT I however did not and now Soviet ICBMs greatly threaten the United States' ICBMs [Ref. 24]. Indeed, in 1969 the United States sought to constrain the USSR's build up through SALT

> unfortunately, this attempt failed because the flawed nature of those agreements permitted huge Soviet increases. The Soviets continued building up with arms control agreements that actually legitimized the buildup of Soviet capabilities. [Ref. 6:p. 62]

The United States Arms Control and Disarmament Agency gave figures showing this increase when they concluded

> The Soviet Union had continued its development and deployment of heavy ballistic missiles and had overtaken the U.S. lead in land-based ICBMs. During the SALT 1 years alone its ICBMs rose from around 1,000 to around 1,500, and they were being deployed at the rate of some 200 annually [Ref. 25].

The original goals of arms control were conceived: to reduce the threat of war, reduce the cost of preparing for war, and reduce the damage should war occur. These original goals of arms control are noble in nature though the supporting positions and premises which the classical approach sought to use to obtain those goals proved unfounded. The foundations of this approach were:

1. Arms control should be a process of technical discussions.
2. Superpowers have common interests.
3. Belief in the "spill-over effect". (If the United States got arms control agreements, it could help in other areas)

4. Arms control agreements would necessarily enhance stability. [Ref. 1]

It is important to review each of these premises for problems other than the obvious one, that given the premises of classical thought arms control became an end in itself. Robin Ranger in Arms and Politics 1958-1978: Arms Control in a Changing Political Context, points out that the United States' arms control policies were apolitical, stressing technical solutions. The United States' technical arms control policies were based largely in scientific emphasis due to a belief that deterrence depended on military technology, and that verification could only be assured through technology. Technical issues also could be easily defended as logical and factors of fairness could be extracted in the equation type approach offered across the negotiation table. The Soviets have always taken a different approach.

> ...by 1963, the Soviet Union's adaptation of the concept of arms control to meet its political objectives had produced an implicit theory of political arms control. Soviet actions and statements, shorn of their propaganda, were consistent with the view that the political causes, not the technical symptoms, of strategic instability had to be dealt with through nominal arms-control measures. [Ref. 26]

The USSR's arms control policies are an extension of its political maneuvering. Ranger concludes his contrasting of the US' and the USSR's as follows:

> Western theories of technical arms control have failed to be translated into policy where as the Soviet Union has secured measures of political arms control [Ref. 26:p. vii].

Ranger continues by noting that arms control agreements to date are at very best minimal, non-restrictive, and that history shows only political arms control is likely to prove negotiable. The reader is encouraged to thoroughly read Ranger's above mentioned work. The

book is exhaustive in his analysis of intellectual, historical, and public-policy records as he reviews all the major arms control agreements from mid-1950s to SALT II to develop and support his conclusions.

The Soviets in their arms control dealings not only acted in a political manner with regards to the US, but actually used american politics to fulfill their aims.

> The Soviets counted on exploiting America's faith in the arms control process, and our deep desire to reduce the risk of war, to inhibit a US response to the shift in the balance of power. The Soviets were able to use our domestic politics and public opinion to cloud compliance issues for years. [Ref. 6:p.62]

The second premise of arms control was based on mirror imaging. To cast the mold of the Soviet intentions and desires to be like the United States was far too simple. Political processes, national goals all differ and to think that the threat of nuclear war would cause both nations to have a similar perspective was a grave error. Mirror imaging was only one of a variety of U.S. perspective problems. Newhouse shows how disorganized the United States embarked into SALT negotiations by stating:

> Little of the preparation for SALT had much reference to Moscow's attitudes; Washington didn't know what these were. The concern was, not what might be negotiable with Moscow, but what could be negotiated with the Pentagon. [Ref. 10:p. 125]

With such a lack of preparation and unity it is easy to see why negotiators have often fallen into the trap of mirror imaging. The reader is referred to the upcoming section on verification and compliance for a greater understanding of this issue.

The history of arms control has shown that there is little positive "spill-over effect" into other areas as the superpowers had negotiated arms control agreements. In fact, the term "linkage" has often shown that arms control efforts can only be successful

when there are strong leaders and general goodwill between the superpowers. Linkage of arms control issues have been used by both nations to achieve policy changes in the opposite government.

The last aspect of arms control dealt with stability. Here the classical approach greatly oversold SALT. SALT did not prevent the arms build up nor change USSR's political goals, nor did it stabilize the strategic balance. The fact of the matter is that the United States needed to realize "the bankruptcy of (its) arms-control theory and the policy of seeking strategic stability almost exclusively through SALT". [Ref. 26:p. 217] This realization occurred to some as the they exposed SALT I as a failure and to more after opposition developed against SALT II. The Reagan Administration came to office with similar views and proposed the beginning of the Strategic Arms Reduction Talks (START). This realization came about amid comments such as the following:

> ...there is every prospect that under the terms of the SALT agreements the Soviet Union will continue to pursue a nuclear superiority that is not merely quantitative but designed to produce a theoretical war-winning capability [Ref. 27].

Such was the general environment even when the cruise missile first came on stage.

New strategic weapons programs usually are debated extensively to determine the force size requirement and other technical details. This did not happen with the cruise missile, which really came on the scene a month after the signing of SALT I. With the signing of SALT I in 1972 the U.S. formally acknowledged it had lost strategic superiority over the Soviets.

The U.S. had tried to get Soviet sea-launched cruise missiles on the SALT I agenda but Soviets did

not want to talk. This refusal contributed to the U.S. initially developing a cruise missile. [Ref. 13:p. 4]

The next time cruise missiles were discussed was in the SALT II forum.

I. SALT II

1. Discussion

Technology has always been the main stay for both the U.S.' conventional and strategic strength. The aim being to achieve technical superiority to offset numerical and other asymmetries. The initial interest, as stated above, in relooking at cruise missile technology was conceived out of a fear of existing Soviet sea-launched cruise missiles [Ref. 13:pp. 4-9]. The U.S. took cruise missile development from a position of inferiority to a position of prominence within the span of a few years. This reactive mode between the U.S. and the Soviets has typified the arms control processes. It was only when the U.S. achieved a technological prominence that the Soviets clamored for restrictions in the SALT II discussions. This was not only for the strategic effect the Soviets saw in cruise missiles, but also for the conventional role that cruise missiles could achieve in the NATO alliance.

An evaluation of the evidence set forth by Huisken would suggest that the Soviets believed well into 1974 that the strategic U.S. cruise missile program was a hollow bargaining chip. It was only after substantive developments later in 1974 that the Soviets changed their bargaining positions as reflected in the November, 1974 Vladivostok talks. By then it was quite clear that the Soviets appreciated the true threat that cruise missiles represented. In these talks and the subsequent January 1975 SALT talks, cruise missiles and

backfire bombers were linked together to proceed with negotiations. This linkage continued into 1976 when the Soviets submitted a new bargaining position, including efforts to limit cruise missiles. [Ref. 13:pp. 22-29] The United States, did not agree with the proposal directly limiting cruise missiles, and thus the U.S. advanced its own position. This position sought to link Soviet ICBM throw-weight limits to any acceptance of cruise missile restrictions. This was possible because the U.S. and the Soviets now understood the developing strategic role cruise missiles were to take in the strategic establishment. The presidential election saw President Carter come to office and in May of 1977, shortly after that a tentative sketch of the SALT II agreement was struck. In essence this is what it contained as it applied to cruise missiles:

a. A treaty lasting through 31 December 1985 based on the Vladivostok ceilings.

b. A protocol which, for a period of three years, would provide for some constraints on the more contentious issues, that is, cruise missiles, the Backfire, mobile ICBMs and ICBM throw-weight.

c. A statement of principles to guide the negotiation of SALT III. [Ref. 3:p. 32]

This tentative agreement however lapsed in dispute at the bargaining table. Notably, the SALT I treaty also lapsed (3 Oct 1977). These two events left a very unfavorable arms control negotiating atmosphere. The failure of the tentative agreement centered about

the cruise missile and peripheral issues such as Iran, Afghanistan and full recognition of China.

Concurrently, the cruise missile issue was in the domestic lime light, as the debate concerning the B-1 bomber and various alternatives were being explored. (B-52s in an ALCM configuration). The JCS argued that both systems were needed and that a range of 3,750 km was needed for the ALCM to effectively reach proposed Soviet targets. This demand seemed all the more necessary as the B-1 project was later shelved by President Carter.

Arms control negotiations finally resumed and in May of 1979 the SALT II Treaty was signed. SALT II included the following provisions concerning cruise missiles:

a. Any aircraft armed with long-range cruise missiles (range in excess of 600km) would count as one MIRVed strategic delivery vehicle.

b. Existing heavy bombers can carry up to 20 long range cruise missiles and the number on existing and future types cannot exceed an average of 28.

c. Up to 120 aircraft armed with long-range cruise missiles can be deployed without cost in terms of displaced MIRVed missiles, Deployments in excess of 120 are permitted but only at the expense of an equal number of MIRVed ballistic missiles.

d. If an aircraft type is deployed as a cruise missile carrier and in other roles, the former variant will be given

externally observable differences to permit verification.

e. Multiple-warhead cruise missiles are banned in the protocol (which expired on 31 December 1981):

f. Ground- and sea-launched cruise missiles, if deployed, will be limited to a maximum range of 600 km although prototypes can be tested to any range.

2. CRUISE MISSILE: SALT II Analysis

The real effect of cruise missiles on the arms control process can best be assessed in what it brought new to the bargaining table. First, it brought an emerging technology with future looking applications, that were not always quantifable. Second, it brought to the negotiation table a weapon system of conventional and strategic significance, where only the strategic had been considered in the past. Thirdly, it brought inherent verification headaches. Lastly, the cruise missile in its dual capacity, brought to the forefront that the United States had to not only consider itself but show consideration in its arms control positions for its allies.

SALT II was sharply criticized by the Armed Services Committee. The Committee went on record discussing the military implications of the proposed SALT II Treaty. The committee said "as it now stands, it (SALT II) is not in the national security interests of the United States of America". [Ref. 24:p. 1]

They concluded that SALT II was unequal in favor of the Soviet Union and therefore inconsistent with Public Law 92-448 (also known as the Jackson Amendment which ordered SALT II negotiators to come up with arms control agreements in a formula having equal

numeric limits on weapons) and that it would allow the USSR to gain general military superiority in the mid 1980's. Specifically, the committee listed the following facts:

a. The treaty formalized inequalities in ICBM throw weight between the two nations.
b. The USSR was the sole nation with heavy ICBMs.
c. The treaty failed to include and restrict the backfire bombers and the SS-20 missiles.
d. The treaty lacked adequate means of verification.
e. The treaty contained the bad precedent of the protocol on cruise missiles.
f. The treaty left loop holes in testing and deploying of ICBMs. The so called 5th generation ICBMs could be built under the treaty.
g. Warhead constraints were insignificant and were to be lifted in 1985 (ICBMs).

All these flaws were apparent even after the lessons of SALT I had been assimilated. The Jackson Amendment (PL92-448) which came as a result of SALT I did not allow for differences in the force structuring of the US and the USSR's strategic forces. It required equality in weapons systems. This was done to avoid a lasting handicap on the United States in future arms control negotiations. The amendment also sought to ensure that U.S. and Soviet strategic forces appeared equal in the eyes of the world and their allies. The SALT II agreement had seemly circumvented the entire emphasis of the Jackson Amendment.

Other broader conclusions and generalizations came out of the SALT II era. The concerns that the United States had going into SALT II remained as indicated in the following quote.

> SALT agreements have not solved and cannot solve particular military problems, such as the vulnerability of the US land-based missile force. In general, it is argued that arms control became divorced from defense planning. Negotiations were pursued for the sake of reaching agreements irrespective of their relationship to force posture or foreign policy considerations. And, as a consequence of the high-level political support accorded the SALT process, national force posture decisions that would otherwise have been a natural outcome of defense planning were distorted, delayed or nullified. What is needed to remedy this situation, it is now claimed, is to downplay the significance of arms control negotiations, reduce their scope, lower our expectations about what can be achieved through such agreements, and "integrate" arms control into defense planning. [Ref. 2:p. 1]

The Armed Services Committee worried that SALT II would give the Soviets the ability to destroy all US ICBMs and that the President of the United States would have to deal with the USSR at a profound political disadvantage. It was noted that the Soviet buildup had to be answered in US defense spending and not an undue reliance on negotiations, unwarranted notions about Soviet cooperation, or the unfounded assumption that SALT treaties reflect Soviet restraint and forbearance, and concluded that overly optimistic hopes that the Soviets threat to our security were being lessened were inconsistent with the facts.
[Ref. 24:p. 3]

The failure of the SALT process was not only a result of the SALT arms control approach. Other aspects can be found that played a significant part. This is especially true when one considers the split between arms control and defense planning. It is argued that formidable domestic political and organizational constraints limited the feasibility for

integrating arms control and defense planning. These constraints included:

a. fragmentation of authority;
b. overburdened senior officials,
c. irreconcilable ideologies of national leaders,
d. conflicting organizational stakes, and
e. the "clean slate" phenomenon as each new administration comes to power.

Some contemporary thinkers believe that it is highly doubtful given the formidable obstacles identified above, that defense planning and arms control will ever become mutually sensitized to the point that either:

a. Weapons are only deployed that satisfy arms control definitions of stability and desirability.
b. Arms control agreements are only reached that meet defense community standards of security. [Ref. 2:p. 20]

Charles Sorrels, in his book U.S. Cruise Missile Programs: Development, Deployment and Implications for Arms Control, points out that SALT II severely restricted US national strategy. He cited several examples, including the Air Force, which did not study a theater ALCM option out of concern that aircraft carrying these weapons might be classified as heavy bombers. SALT II also seemed to depart from the significant position the U.S. had always maintained of not including U.S. forward based systems in arms control discussions. Furthermore, Admiral Hollaway III, Chief of Naval Operations, testified in Feb 1976 that cruise missile range restrictions established in the protocol were not equitable as the U.S. had a

distinct disadvantage because of the coastal positioning of U.S. cities and industrial areas. The SALT provision which imposed a cost when a total of 120 ALCM aircraft were reached truly restricted only the U.S. who had plans to deploy such systems. SALT II limited other options that might have led to other cruise missile carriers other than B-52, such as modified 747s or C-5s. All these plans became captives of an arms control agreement that is fairly characterized as a bad agreement one that not only covered strategic cruise missiles but limited in practice conventionally armed cruise missiles as well. [Ref. 9:pp. 162-164]

The SALT process clearly showed that strategic forums and discussions are required to handle a variety of issues simultaneously issues that can bleed over from the strategic, to the theater (INF/LRTNF), to conventional issues centered about NATO defense. This is largely why the Reagan Administration has gone with a negotiation strategy of carrying various talks on separate topics concurrently under the direction of separate arms control negotiation teams.

J. SALT CONCLUSIONS

This chapter has discussed the various parameters that surrounded the deployment of the cruise missile. Parameters that are relevant to any new strategic system. Linkage and actual bargaining practices have only slightly been touched upon for the sake of simplicity and clarity. Consequently these conclusions, though well documented, may not have been fully developed in the narrative, but to avoid listing them would serve to leave out the morale or essence of the lesson a case study of the cruise missile can bring.

First consider the Soviets. Ron Huisken in his book, makes a strong argument that the Soviets have a highly centralized and cohesive military influence in their arms control policy, there being no civilian officials in the defensive departments with authority over the professional soldier. He argues that the Soviets see limiting of nuclear arms as a military, not an arms control or disarmament issue per se. They see everything in terms of their defensive posture to protect mother Russia. [Ref. 10:p. 9]

Weiss concludes something similar when he says

> The Soviet interest is in optimizing its position. It looks upon arms control negotiations as only one of several tools available to it to demonstrate the ultimate righteousness of its vision of the world - a world in which Communist states led by the Soviet Union are preeminent [Ref. 28].

The warning must be that with the Soviets pursuing political and military objectives in arms control agreements, the United States has to continue a dual track concept, one of negotiation, as well as one of weapon development and enhancement [Ref. 8:p. 18].

The success of the Soviets at the bargaining table points to ways the United States may choose to change the way it conducts arms control negotiations. The United States needs to restore the harmony between arms control and the military's mission of providing for strategic defense. This would require the military having a larger role in developing and negotiating arms control policy. This is not to suggest that civilian control of arms control talks should be aggregated solely to the military. It does however speak for a larger role of the military in negotiation teams.

The United States' failure to present a political agenda instead of a technical agenda should be modified as well. The overall policy that the U.S. proposes should be agreed upon with due consideration

of the military's concerns. These changes would allow for more constancy in purpose, consistency in strategic military doctrine and smoother evolutionary transition into future strategic defense doctrine as well as arms control positions. It would also place arms control in a position of support of U.S. strategic defense as initially envisioned by classical arms control theory.

Secondly, consider how U.S. arms control perspectives need to be changed. The U.S. must realize that complicating any agreement is that U.S. and Soviet interests are not mirror images and as such, that asymmetries make reaching agreements very hard. It must also be considered that because of the U.S. nuclear guarantee for the allies, there is less flexibility in the negotiation strategies available to the United States. For NATO a large part of their security relies not only in US strength but in their belief that the U.S. will honor her pledges and not trade away things of value to her allies. Weiss captured the total picture of SALT II to the United States' allies when he said: "The SALT II agreement provided the strongest impetus to Gaullism in the last 20 years" [Ref. 28:p. 64].

Thirdly, consider the nature of negotiations between the superpowers. Huisken concluded that cruise missiles have proved the artificiality of distinction between tactical and strategic nuclear weapons. Likewise in the future SDI might prove there is no distinction between earth and space, that space is a medium for defense or offense just as the air, land or sea. Consequently, SALT had to widen it's mandate and the U.S. needed to broaden it's strategic negotiating policies. President Reagan did this in START proposals

and by eventually getting three standing committees going. Huisken also concluded that:

> The prolonged negotiations and the meager results have significantly undermined the credibility of the thesis that arms control agreements are a preferable and viable alternative to unilateral armament as a way of preserving a strategic balance [Ref. 13:pp. 57-58].

Weiss notes the consistent pattern of negotiation the Soviets have of opposing U.S. strategic initiatives and developmental programs. He points out that the U.S. has often given in to Soviet pressure even in disregard of the laborious interagency technical studies indicating such positions could hurt U.S. national security. These unwise positions were embraced in an effort to support the process of arms control. The cruise missile case study gives many examples of this. One small example is where the protocol, which limited the deployment of GLCMs, did not allow us to shift quick readiness alert (QRA) roles for 600+ aircraft. These aircraft were desperately needed to fill tactical missions in NATO's force structure. [Ref. 28:p. 63]

Lastly, consider what all this means for arms control. Ironically, in search of parity, or symmetry, arms control negotiations can stimulate the arms race and drive deployments up. It can encourage developing weapon systems and keeping old ones alive to use as bargaining chips. History has shown it is not arms races that the world must fear, but that war comes out of weakness and irresolution by one or both of the antagonists.

Arms control also shows that formal negotiations tend to produce greater clarity and legal nuances that at times can prove to be undesirable. There are times when some things should be left gray, especially when they support survivability.

> In sum, the inherent deficiency of the SALT II Treaty is its inability to achieve the most important objective of arms control: strategic stability [Ref. 17:p. xi].

One could conclude if stability is paramount to peace and deterrence, that there should first be a consensus on how to measure it. It seems that is very hard to access and agree upon, thus the reason for negotiations, and the process continues.

The failure of SALT might be said to prove that agreements can only be modest in what they get and that unilaterally the United States must provide for its national security.

IV. STRATEGIC EMPHASIS AREAS

The author should have now convinced the reader that there is evidence that arms control initiatives in the past have diverged from the evolution of U.S. strategic policy. This trend was most apparent during the SALT era and is now being reversed by the Reagan Administration. The military has a legitimate interest in influencing arms control initiatives. This influence must first be born out of an understanding of what arms control is and what it has become by seizing the opportunities found in the R&D process, funding and fielding strategic systems that are consistent with national security goals and doctrine. The author has spent little time pointing out exactly what the military should do to achieve these goals. This is because the actions available to the military are implicit in the issues that arms control deals with. The key facet is to keep national security interests in the forefront of arms control. Arms control agreements should only be secured that are consistent with those security interests.

Now that a general overview of national security and arms policy has been given and followed by an illustrative case study form the past, there remains two other requirements for this paper. The first is to provide the reader a glimpse of the present and future issues at the forefront of national strategic security interests, which should of necessity be considered in arms control initiatives. The second is to revisit certain emphasis areas that are far more important than the case study of cruise missiles could facilitate in discussion.

Returning to the first topic needing comment, there exists numerous avenues one could take. The author

could discuss the present and future by discussing the current strategic weapon systems coming into or proposed for the United States strategic arsenal. Another area of discussion could center on what some consider the United States' ultimate crisis "the vulnerability of the US ICBM force". One could review the current positions and emphasis areas now being handled by arms control negotiators.

All these approaches seem flawed by the author for three reasons. The approach to consider current negotiations is void if one accepts that arms control initiatives need to be revised before they will be in a position to be most supportive of and secure national security. To discuss current problems of the U.S. strategic forces centers the discussion in past mistakes. Discussing specific weapons systems becomes a discussion of technical trivia. It then makes more sense to consider the primary emphasis that the defense department is working on, which they feel is necessary to secure the national defense. This will be done in the following section centering on, not a weapon system, but on a systems analysis on the strategic command, control and communications (C-cubed) of the United States.

The other approaches share an additional flaw as they are overshadowed by the concept of the Strategic Defense Initiative (SDI), all except the work being pursued in the C-cubed area. SDI could easily prove the only feasible answer to safeguard the vulnerability of the United States ICBM force. It also overshadows the strategic offensive weapons that maybe under development. It does this by providing for a new strategic doctrine one based on a more balanced reliance on defense as well as offensive measures.

Consequently, the C-cubed system approach and SDI will be discussed. This will complement the cruise missile case study by allowing for additional emphasis and clarity of arms control issues.

A. C-CUBED: A SYSTEMS ANALYSIS

Today, the strategic areas of concern are the President's Strategic Defensive Initiative (SDI), vulnerability of U.S. ICBMs, and a new emphasis on strategic command, control and communications (C-cubed). While SDI and ICBMs vulnerability are as hotly contested as cruise missiles were a decade ago, the aspect of the C-cubed has not drawn as much public debate. Whether this is a product of limited knowledge in the C-cubed arena, not as pressing as other public issues, or due to the fact that we have an initiative where harmony exists between arms control and defense policy, remains to be seen. What is known is that in 1981 a Congressional Budget Office report stated:

> The network that controls and would direct the actions of the offensive forces--the command, control, and communications, or C3, system--has received relatively little emphasis to date, though many strategists and analysts concur that this critical nervous system is as sorely in need of improvement as the offensive forces themselves. [Ref. 18:p. iii]

Shortly after that report came out in October 1981 President Reagan initiated a sweeping program to modernize each element of the triad, as well as the strategic C-cubed system [Ref. 6:p. 55].

This policy should be the cause of great interest for U.S. military officers given they have charge over the strategic C-cubed systems. Thus, with a background laid, and an orientation of purpose established, this chapter will proceed to outline in more detail the ramifications of this renewed interest in C-cubed systems.

Current readings in arms control point to the failure of United States' SALT initiatives as being technically oriented, or analytical in nature while the Soviets took a successful political, or as it were, a systems approach to arms control. This may be a simplification of the full argument, but it serves to point out differing perspectives on the problem. In 1975, Secretary of Defense Schlesinger reported to Congress:

> Our present C3 resources have not been systematically designed to accommodate today's complex C3 requirements. In general,they were introduced in response to specific changes in the threat or to take advantage of a particular technology. As a result the overall C3 system is not as thoroughly integrated as it should be. [Ref. 29]

The United States' strategic C-cubed system has similarly suffered from what some would call the analytical method. Strategic C-cubed systems have been viewed, modified and discussed as segments of a whole. Rarely has it been treated in a system approach, viewing the whole problem of command, control and communications in its entirety. The Administration has however has asked the military to take such a view. Some would already label this effort a failure as in this quote:

> Despite new efforts by the Reagan administration to elevate the priority of C3I to a level the same as or higher than that of the (strategic) forces, no dramatic shift in perspective or policy has occurred [Ref. 30].

This observation may contain some truth but it fails to expand on the complexity of the problems and thus is premature.

Col. T.N. Dupuy (Ret.) in his preliminary draft of "In Search of an American Philosophy of Command and Control", traces the concept of command and control (C2) to an expanded concept of command, control, communications, computers, countermeasures, and

intelligence (C5I) [Ref. 31]. The analysis of his work serves to show that the basic concepts involved in this strategic system, what is termed C-cubed systems, are only in their infancy. Thus the system approach can only be helpful in gaining a picture of what the military is tasked to come to grips with. West Churchman is an advocate of the systems approach convinced that it offers the solution for present-day problems [Ref. 32]. He outlines five steps concerning systems thinking. Following adaptation of his principles to the specific topic at hand, this is a listing of his five emphasis areas, which allow for a discussion of an entity using a systems approach:

1. Objectives of the strategic C-cubed systems (Mission requirements),
2. The C-cubed environment (domestic & arms control & foreign threat),
3. The resources of the system (personnel & strategic flexibility),
4. The components of the system, and
5. The management of the system.

These concepts will be used to examine United States' C-cubed system, its present position, and where the system needs to be in the future.

B. OBJECTIVES OF A STRATEGIC C-CUBED SYSTEM

It might be helpful to build on a basis of definitions to arrive at what Churchman would consider the system's objectives. The first definition is that of strategic command and control is the military function of supporting the Commander in Chief in his immediate direction of operational strategic forces [Ref. 33]. The following quote brings up the next facet of strategic C-cubed, the concept of communications: "My commander in chief may make me an admiral, but only

communications can put me in command". [Ref. 34] Inherent in this process is having the appropriate intelligence in which to optimally direct strategic forces.

Thus, the strategic C-cubed system is composed of three basic elements:

1. Intelligence systems and sensors providing early warning and assessment.
2. Command centers with friendly and foe forces depicted for decisionmakers to make appropriate decisions about responses.
3. Supporting communication enabling the National Command Authority (NCA) to get orders out and data in. [Ref. 18:p. ix]

Within these elements the primary objectives of the system are found to be:

1. Intelligence gathering.
2. Decision making processes based on accurate data analysis.
3. Ability to have strategic forces receive, execute, and respond to orders.
4. Have the system act as a force multiplier in and of itself. (Some have appraised the current system to be worth 20-30% of the nominal strategic force). [Ref. 29:p. ix]

Some cautions are necessary in looking at what seem to be simple objectives. First,

> It is very hard to draw a direct relationship between U.S. strategic doctrine and the U.S. strategic command and control architecture. This is because "strategic doctrine has itself rarely offered clear or coherent guidance for the design and development of command-and-control systems and procedures." also U.S. doctrine has been

transitory from simple ideas of MAD (Mutual Assured Destruction) to the complex concepts of flexible response. It is the concepts of flexible response, countervailing strategy in a contact engagement which burdens the command and control system. [Ref. 29:p. 6]

Secondly,

> In presenting today's multi-faceted, worldwide picture, filtering of information is a massive problem that frequently is ignored by those not familiar with C2 operations. Filtering should not present an over-simplified or unbalanced picture or one that fails to answer the most obvious questions. Therefore, filtered information still tends to be of great complexity and detail, hard for anyone to understand without lengthy study. Advanced techniques are needed for presenting or displaying this information so as to hasten the decision maker's comprehension of what is being told. Usually advisors have to be present also to provide expert advice the commander and answer specialized questions, and they too need to be filtered. [Ref. 33:p. 28]

Lastly, the environment in which the C-cubed system must operate is vast, politically sensitive and operates against a true threat.

It becomes very helpful in considering the system approach to develop a model of the problem or aspect being considered. A *simple one in sketch form is* offered. A Strategic C-cubed process model might appear as such:

Enemy--> (Surveillance/warning & situation assessment) --> (Situational Data)--> (Decision Support)--> Orders --> (Own Force). Then the model cycles back to surveillance portion, etc., considering your own forces status and actions. [Ref. 33:p. 4]

C. ENVIRONMENTAL C-CUBED FACTORS

There are three basic environments that the strategic C-cubed arena must be considered in, excluding the internal inoperability that it inherently must have. These three external areas are:

1. The Soviet threat,
2. The arms control environment, and

3. The rapidly expanding technological environment.

Each of these will be dealt with in turn. The author will deal with these issues in reverse order, as they appear above. The reason is that technical advancements in the strategic weapons field has created an environment that has placed strategic C-cubed as a priority issue for this Administration. Technical advances have created a new stage of vulnerability for the strategic C-cubed system. Simply stated, there is growing concern that the vulnerability and extreme importance of our strategic C-cubed systems might make them an extremely lucrative target.

> Indeed, to many knowledgeable observers, the most troubling prospect of a Soviet first strike is not that all of our ICBMs might be destroyed, but that the systems supporting our retaliatory efforts would be taken out, leaving our missiles sitting harmlessly in their silos [Ref. 35].

Defense Secretary Caspar Weinberger has spoken of a growing C3I gap between the United States and the Soviet Union. A gap that not only reveals the weakness of the United States C-cubed systems but the strength of the Soviet's system.

> As many as 2,000 warheads - almost half the weaponry distributed among our entire fleet of nuclear subs - might be required just to disable the Soviet Union's advanced C3I network. Our system, which basically relies on the same long distance telephone lines millions used to call mom could be taken out with fewer than two dozen warheads. [Ref. 35:p. 26]

Two dozen warheads may seem a very small number of warheads to cause the collapse of our strategic C-cubed system, however, other open source estimates put the figure at two hundred or so. The conclusion is easily made as a former Under Secretary of State once said, "It does us little good to have a strategic deterrence if, after a first strike, if we can't communicate with it". [Ref. 33:p. 27] This has implications that force

the United States to seek increased endurance and survivability in its strategic communication systems. These issues will be addressed later as part of Churchman's systems approach.

The United States has made some progress in this area. Several years ago it was recognized that the communications systems were not as survivable against the present threat as were the forces (e.g., the submarines, ICBMs and bombers). An effort was undertaken by the defense community to identify the communications assets most likely to survive an attack without strategic warning. These are classified as the Minimum Essential Emergency Communications Network (MEENN). Some in the Department of Defense are satisfied that there is a high probability that this network has improved to the point where, in the face of today's threat, it could maintain a line of communication to the forces. Not all analysis of the current situation are so positive and one can easily see where a defensive initiative such as SDI or other technological advances could go a long way to solve the perceived vulnerability of the United States strategic C-cubed systems.

The strategic C-cubed system may be examined not only in a technological context, but also in the context of their relationship to arms control initiatives. Indeed, Section 36 of the Arms Control and Disarmament Act, requires submission of Arms Control Impact Statements (ACIS) dealing with military support programs, with respect to this requirement, command, control and communication programs are some of the most significant.

These Arms Control Impact Statements assess the following:

1. The relationship of the C3 system to the weapons systems they support.
2. the broad arms control implications of the C3 systems and how they interact with weapons systems.

There is no doubt that decisions on C3 system can have lasting effect for the future in the acquisition and employment issues. [Ref. 36] It is important to realize that the arms control arena also has a great political influence, an influence that can have a variety of goals. Some people may desire increased abilities in the C-cubed system to achieve "warfighting" capabilities. Others may want advances in safety, error checking, and detection, believing that a safer and more controlled C-cubed system may prevent war or at least some possible causes of war, such as accidental launch.

The last environment that needs to be considered is how the Soviets are expected to act in a strategic engagement in reference to the United States C-cubed systems.

There are no serious considerations in the Soviet literature of such comments as controlled and limited war. In fact, when the United States has come out with such policies the Soviets have refuted that such a state can exist. In August 1980, Brezhnev said "statements about alleged limited and partial use of nuclear weapons have nothing in common with reality". [Ref. 29:p. 32] Soviet strategic policy and targeting doctrine is to the effect that any nuclear exchange would involve simultaneous and unconstrained attacks on a wide range of targets, which would certainly not

exclude C3 systems [Ref. 29:p. 30]. This can be found in a Soviet military text on Marxism-Leninism on war and the Soviet army which states that:

> Mass nuclear strikes at the armed forces of the opponent and his key economic and political objectives can determine the victory of one side and the defeat of the other at the very beginning of the war. Therefore, a correct estimate of the elements of the supremacy over the opponent and the ability to use them before the opponent does, are the key to victory in such a war. [Ref. 29:p. 30]

Soviet nuclear targeting policy follows directly from this doctrinal refrain. In the event of a nuclear war. Soviet strategic forces would be used massively against a wide range of nuclear and conventional targets, command-and-control facilities, centers of political and administrative leadership, economic and industrial facilities, power supplies, etc. rather than more selectivity, in target volume or target types [Ref. 29:p. 30].

The above statements would indicate that the current emphasis on upgrading the survivability and integration of C-cubed systems is warranted, based on perceived Soviet intentions, not merely on technical feasibility. Consequently, one should look at the resources that are available to allow for the realization of an enduring and survivable system. The resources lie largely in how people operate the C-cubed system and the technological systems and advances which are possible in this area. So as to not allow this chapter to degenerate into a description of specific systems (i.e., WWMCCS, DEW, GWEN, BMEWS, etc.) it is sufficient to list the elements of the strategic C-cubed systems as:

1. Voice and data communication lines,
2. Sensors,
3. Software - data fusion, AI,

4. Platforms
   - Air breathing: manned and unmanned
   - Satellites
   - Ships and submarines
   - Fixed bases
   - Ground mobile
   - Boosters

5. Communication equipment [Ref. 37].

The author will now look at the components of the system, as defined by Churchman in his systems approach outline.

D. COMPONENTS OF THE C-CUBED SYSTEM

Following the system analysis as Churchman envisioned it, it becomes necessary to revisit some topics already covered in brief. This is a result of looking at the components of the system which interpreted, means the missions or tasks that the system must achieve to carry out the objectives of the system. Thus the parameters discussed here, act as the measures of effectiveness (MOEs) for the system. The C-cubed system must:

1. Be survivable
   a. avoid vulnerability
   b. avoid decapitation
2. Allow command of strategic forces in any circumstance giving world-wide coverage (must allow for two way communication)
3. Provide flexibility
4. Provide time sensitive and accurate attack warning, attack assessments, collect and process intelligence information, and decision aids
5. Have endurance potential

Comments on all of these points are warranted. The Nuclear Targeting Policy Review (NTPR) concluded in 1978, the U.S. command, control, communications and

intelligence (C3I) system should have much greater endurance than the present system. At that time endurance was thought of in terms of days to possibly a week. Now in 1987 endurance is discussed in terms of months. [Ref. 29:p. 2] This change in endurance policy came when the Reagan Administration modified the 1982 countervailing doctrine. Secretary of Defense Caspar Weinberger directed the United States military to prepare to fight a contracted nuclear war. This placed new endurance requirements on the C-cubed system. This requirement meant that the strategic C-cubed system had to:

1. Be sufficiently hardened to continue to function after attack.
2. Permit rapid retargeting.
3. Provide the NCA with needed real time reconnaissance after strikes.
4. Allow for essential two way communication between NCA and SIOP forces.
5. Provide a method or channel to enemy that would permit negotiations with the enemy, while the conflict ensued [Ref. 38].

Certainly the above policy change required a survivability previously unknown by the C-cubed system. Thus a review of the vulnerabilities of the system was undertaken. These vulnerabilities are of course dependent of the particular makeup of the system. They are also dependent on the scenario of attack that one might contemplate. The strategic C-cubed system suffers from all the same vulnerabilities of strategic forces

plus those peculiar to command, control structures and communications. These, to name a few, include:

1. blast
2. radiation
3. sabotage
4. non-nuclear weapons
5. human error
6. natural phenomena
7. equipment failures
8. jamming
9. deficient Communication Security
10. NCA decapitation
11. satellite threats. [Ref. 29:p. 2]

Many authors have keyed on decapitation as the main threat. Decapitation refers to killing the President and destroying the smooth transition of power from the President to and through the sixteen constitutionally designated successors. Such an attack could have grave consequences. These authors' comments are illustrated in the following paraphrase: Decapitation has become the most significant threat to United States nuclear capability yet standard assessment techniques have failed to recognize it and take appropriate measures. This situation also undermines crisis stability biasing the NCA to make rapid and early execution of SIOP. This time pressure on senior military and political authorities undermines rational assessment and promotes miscalculations that could produce war. [Ref. 39]

These comments must strike a realistic cord as the following quotation would suggest. Secretary of Defense Caspar Weinberger indicated that the

> Administration believes its C3I plan, once implemented, would deny the Soviets the option of either attempting a decapitation attack, or using protracted war tactics to exploit the limitations

of our C3 system, and would provide the United States with a C3I system compatible with our strategy of deterrence [Ref. 30:p. 45].

The flexibility required of the system based on possible and/or perceived strategic scenarios complicates the measures of effectiveness used to evaluate a C-cubed system. One can easily see why the assessing of MOEs and the components of the strategic C-cubed system is so difficult. It also should show the reasonableness and validity of taking a systems approach in considering C-cubed needs. The analytical approach would required this chapter to deal with the particulars of specific systems and build outward. This would have soon become overwhelming. The system approach lets the discussion of all pertinent facets of the C-cubed system progress in a manner that can be comprehended, though it amply shows the complexity of the coordination and workings of the physical system.

E. C-CUBED SYSTEMS: MANAGEMENT

The last area Churchman covers in his systems analysis is what he terms management. This is broken down into two functions. The first being planning the system which involves all aspects of goals, objectives, environment, use of resources and its components. These have all been discussed enough to allow moving on to the second function Churchman includes in his management field. This field involves both the execution of plans and the planning for change. The execution of plans is outside the scope of this paper as one could discuss targeting options, OPLANS and a variety other options. The idea of planning for change is what this paper is about. The importance of the system is begging for change. Change is needed to secure the measure of effectiveness to allow for an enduring system capable of operating effectively under

the pressures of a Soviet strategic attack. It requires vast improvement in all functional areas of the system. The soft nature and vulnerabilities of the vast majority of the C-cubed systems begs for a defensive capability. What technology cannot give in improving the survivability of individual systems, SDI might provide for the whole C-cubed system. This would be possible if SDI achieves its desired end of blanket coverage/protection of the United States. SDI then holds the promise of a solution that bridges the full scale of strategic concerns from decapitation to EMP effects. All changes must be managed and directed effectively. Steps are being taken to provide for the necessary change, and developing a system approach to coordinate the C-cubed arena. Some of these steps are as follows:

1. Congress authorized creation of a new Assistant Secretary of Defense for C3I functions.
2. Defense Secretary Weinberger has created a new executive committee and a new C3I review council to coordinate C3I planning, development and procurement. [Ref. 38]

Such initiatives and the research now being devoted to the C-cubed arena will hopefully break through the complex issues that have limited people in the past to a system by system look at C-cubed concerns. Past efforts in their fragmented approach cannot be effective for strategic forces in the scenarios of conflict currently seen as possible. A systems approach would also serve the arms control community in

any negotiations that might call for agreements limiting the vulnerability of strategic C-cubed systems.

The military is uniquely capable of providing a system perspective concerning defense issues as well as arms control concerns. The military has the responsibility for defense, controls developing technologies, manages and operates the majority of strategic C-cubed systems, and can assess arms control impacts far better than any other constituted organization. The military has the ability to control strategic systems from development, production, up to deployment, with consistency in doctrine through to execution of any eventual employment.

V. CRITICAL CONCEPTS

The last chapter discussed the strategic C-cubed arena from a systems approach and why the military is uniquely qualified to provide for such an approach in the strategic and arms control arenas. There are other concepts that need further explanation or emphasis to provide a balanced view of arms control issues and concerns. With the previous portions of this paper providing ample background the issues will not be discussed in quite the same depth as C-cubed systems. An effort will be made to blend comments of this chapter with previous material to allow for conclusions and summaries to be drawn by section.

A. TECHNOLOGY: WHAT IT IS AND WHAT IT IS NOT

It is important to understand terms when discussing technology. "Technology is neither science nor products, but rather a system of knowledge which converts theory to hardware" [Ref. 40]. Often technology is given a wider application or meaning and conjures up thoughts of the complete research and development (R&D) field. R&D has three basic components those being science, technology, and products. These components are not necessarily tied to a force structure or supportive of a particular doctrine etc. The R&D structure is tasked

> ...to develop and to preserve options, which may or may not be taken up. The purpose of R&D is to buy options. Its precise purpose is to reduce the time that would be required before the achievement of an operational capability. The low costs of preproduction R&D are accepted as insurance against future military demand...without any commitment to force structure. [Ref. 41]

The actual selection of weapon systems can influence all other components of military power: strategy, military operations, manpower, logistics, and training.

Consequently, today the technology available to choose from plays a large part in allowing the United States meet it's military preparedness mission.

There are several technological themes that are apparent today.

1. The choice of high over low technology weapons.
2. Gaining technological superiority as the goal of the superpowers.
3. Military establishments opting for incremental gains rather then giant technological gains.
4. Consideration of human aspects of C-cubed throughout technological development [Ref. 42].

All these themes merit comment other than the fourth area having already been sufficiently developed in chapter IV, but worthy of relisting. It is the author's opinion that technology is a factor in securing the national interest, but only a factor. The following quote summarizes the author's existing feelings.

> At the heart of East-West tension lies, not technology, but a variety of far more fundamental, and far more intractable, causes having ultimately to do with the profound differences between the two great alliance systems and the social, political, economic and value structures they exemplify [Ref. 43].

If technology is not the source of friction between the superpowers but merely a factor, then is it the United States' answer in its quest for security? The United States has opted for the high technology and though heavily relied upon it is not a panacea.

> ...technological superiority by itself does not translate directly into military superiority; weapons designed to exploit a lower level of technology may be as effective as more

> sophisticated weapons when produced in quantity and integrated with an appropriate military doctrine [Ref. 44].

Technological innovation in either low or high tech varieties offers an important means of achieving surprise. It is surprise that gives one a marked strategic advantage in warfare. Technology acts then as a complicating parameter in the security world where an innovation (whether high or low technology) may have strategic implications.

> Technology not only changes the relationship of individual fighters to their foe, but even makes the whole purpose of preparation for war, on a general level, much more sophisticated and demanding. The massive increases in weapon range and lethality described above have led national leaders to focus on the deterrence of war as the primary aim of warfighting capabilities... technology has caused most of America's military effort to be organized around the idea of a permanent threat, one to be deterred, not confronted, because the consequences are too awful. [Ref. 42:p. 92]

The gaining of technological superiority remains the goal of the superpowers as it may afford a strategic windfall, whether using high or low technological methods. This begs the question as to how ready and how capable are the military establishments in dealing with technological breakthroughs.

The cruise missile case study would indicate that at times technology can out pace the practical or the strategic use of such technologies until policy and acceptance are found or legislated. Much of the problem lies in the acquisition process in the United States. Critics of the Department of Defense acquisition process complain that the acquisition process is debilitating, void of military strategy, and operational concepts. It is argued that technology is supreme and the military even shows a reluctance for technologies that upset doctrines or existing

structures. What is needed, it is argued, is that no element should be supreme but all should work in harmony to achieve national security goals [Ref. 42:p. 157]. There must be an integration of military, technological, and operational strategy. Presently, in DoD there is as much competition and conflict as rationality and cooperation. Politics and bureaucratic processes are a large part of the equation. This is not to say that the DoD does not do better than many other organizations. It merely states that improvement is warranted. The key then is to achieve some sort of effective dialogue between those elements allowing for the fashioning of consistent war concepts and policies [Ref. 42:p. 171]. Though there may be internal problems in DoD that need to be worked on to achieve a harmony of purpose, it is the author's feeling that DoD is in a better position to generate consistent strategic nuclear doctrine then the institutions presently employed. Currently, the United States' efforts in this area can be characterized as Desmond Ball has observed:

> An examination of...different facets of American strategic nuclear policy reveals the lack of a coherent or consistent overall direction in that policy....Both the actual levels of U.S. strategic forces and the characteristics of the particular weapons systems...have been more determined by bureaucratic/political outcomes that by any rational analysis of U.S. strategic requirements. [Ref. 45]

Now technology has been discussed a final observation is warranted as it concerns technology and its relationship to arms control.

> ...for many reasons arms control negotiations aimed at military R&D rather than deployed weapons, seem almost certain to fail; even the frequent suggestion of indirect control via a ban on weapons tests has serious drawbacks as an arms control technique. Therefore, it seems only prudent to evaluate constantly our military R&D program in the context of our own decisions, without relying on

any mutual restraint on the part of the Soviet Union, however welcome that would be. [Ref. 44:p. 176]

As earlier quoted:

> Technology has caused most of America's military effort to be organized around the idea of a permanent threat, one to be deterred, not confronted, because the consequences are too awful [Ref. 42:p. 92].

This concept of deterrence will be the next area to be developed.

B. DETERRENCE

The concept of deterrence is familiar to most people though not its pitfalls and true scope. Deterrence by definition means preventing certain types of contingencies from arising. Thus deterrence involves a forecast of costs and risks of associated or anticipated actions [Ref. 27:p. 25]. The United States' first stated national security goal in part says that the military must have the ability to safeguard the United States, its forces and allies by deterring aggression [Ref. 6:p. 42]. One pitfall is mirror imaging as some analysts believe the United States has been guilty of. It can be stated as "we developed a deterrent that would deter us if we were Russians, but which would not necessarily deter the Russians". [Ref. 46] Deterrence not only must act to discourage aggression but also the political encroachment of our national interests. The ability of the Soviets to pressure other governments to act in accordance with their will is part of the larger scope that deterrence must include. This idea is expressed in the following quote:

> War is then not necessary for the Soviets because the threat of military action is enough to cause accommodation. In our defense planning jargon, we call these virtual wars -- wars that don't actually occur, but the expectation of the probable outcome brings about that outcome. Deterrence needs to work against virtual wars, too. [Ref. 47]

It should be remembered that deterrence is a political concept. Military strategy deals with the military actions one would take if deterrence fails. As a political concept, and in that sphere

> Deterrence is inadequate as a foreign policy. There is a great range of enemy action that we seek (to deter) far more than (just) security--however vital it may be--there remains a vast field where deterrence has no utility at all. In areas where the communists cannot be efficiently deterred we must create the conditions which will nullify their strategies. In areas where the opportunity exists to enhance the general welfare we must as surely act. Indeed, here must be the heart of our policy, with deterrence as its discreet, powerful, and versatile guardian. [Ref. 27:p. 42]

To be effective politically, the United States must persuade the Soviets

> ...that we have the capability to act; that, in acting, we could inflict costs greater than the advantages to be won from attaining their objective; and that we really would act as specified in the stated contingency [Ref. 27:p. 26].

To do so effectively, US strategic defenses must meet four tests.

1. Survivability: The United States must be able to absorb a preemptive attack with sufficient strength to inflict on the enemy losses that he perceives to be intolerable.
2. Credibility: The enemy must believe we have the military capability to carry out our threatened response.
3. Political Will: The enemy must believe we have the political will to carry out our threatened response.
4. Clarity: The action to be deterred must be clear to our enemies that it is prohibited.

One final thought one should always remember is that deterrence does not itself guarantee that nations will act rationally. Many experts believe that the balance of terror is not as important as the balance of power with the political advantages it can give the owner in peace and crisis environments.

If deterrence is working one can credit it with a certain amount of stability, but how much is the real question. This aspect will be considered in the next section.

C. STABILITY: SURVIVABILITY / CAPABILITY

The premise that stability is a paramount factor in the arms control arena has been stated numerous times. It is summed up as follows: "Stability of a higher level (of nuclear armaments) is preferable to instability at a lower level". [Ref. 48]
What has not been discussed are the two basic components which create stability, in a strategic sense. These components are survivability and capability, and are determined in analysis of opposing forces'. The question of survivability and capability is in a large measure a product of a nation's overall strategic doctrine and armament level.

The next section will make further comment on specific U.S. strategies and how they impact on the variables of survivability, capability and doctrinal soundness.

The bottom line in any discussion of survivability and capability is that survivability is the most important quality contributing to stability, for capability without survivability is unstable. This is the premise that, if true, seems little supported in the present agreements the United States complies with today. A look at arms control agreements today as

characterized by attributes of survivability and capability is disheartening. A simplified chart of these factors follows:

SURVIVABILITY	ARMS CONTROL IMPACT
1. Mobility	SALT II restricts it
2. Hardening	Permitted
3. Proliferation of launchers	Restricted
4. Defense	Banned
5. Concealment	Banned
6. Dispersal of basing	Permitted
CAPABILITY	**ARMS CONTROL IMPACT**
1. Launchers	Restricted
2. Warheads	Less Restricted
3. Accuracy	Unrestricted
4. Promptness of delivery	Indirectly restricted
5. Throw-weight	Unrestricted

[Ref. 49]

The above table paints a disturbing picture one that seems to confirm the following quotation from a Rand Corporation study:

> American strategic thinking--born predominately of civilian defense specialists bearing legal, technical and distinctly non-military intellectual outlooks--is deeply rooted in the proposition that nuclear war is unwinnable in any practical sense...it has also produced an increasingly predominant belief that deterrence stability (hence U.S. security) is best served by a strategic environment of mutual vulnerability. The Soviets reject "mutual vulnerability" out of hand as an abdication of political responsibility. [Ref. 50]

Vulnerability can only be equated to stability in a MAD concept, though this seems very hollow if indeed mutual vulnerability is rejected by the Soviets. The Scowcroft Commission reported:

> Encouraging stability by giving incentives to move toward less vulnerable deployments is more important than reducing quickly the absolute number of warheads deployed [Ref. 45:p. 27].

In effect this gave priority to force restructuring over force reduction as the primary means of enhancing stability.

It is appropriate to provide a simplistic scenario to capture the essence of what is being discussed. We shall assume two opposing nations each possess six nuclear missiles for their strategic defense. The physical characteristics and capability of these missiles would require two missiles to be targeted against an opposing missile silo to ensure destruction of the silo. In this case there is stability as a first strike would allow for a second strike of three missiles against what would be then an unprotected enemy. If the rules were changed such that one missile could kill another missile, then an exchange could leave no one as a clear winner unless surprise was absolute. Thus stability is still greatly encouraged in disregarding the exact postures and capabilities of each nation's systems.

Things change radically if in the scenario the countries possessed MIRVed missiles. If in the example each of these missiles has a capacity to destroy three opposing missiles, we predict a new outcome. In this scenario under ideal conditions, it would take just two MIRVed missiles to destroy the other nations silo-based missiles and would allow for twelve other warheads to be targeted independently, allowing for a great possibility for instability.

One can argue that in the last scenario that capability still plays a role in the destabilizing effect. Capability can be shown to be less important then survivability however, by changing the force structures. Country "A" has eighteen unMIRVed missiles capable of destroying one enemy silo each. Country "B"

has the six MIRVed missiles capable of knocking out three enemy silos each. Here capabilities greatly differ but stability is likely to be high, where surprise cannot be achieved. In fact it is just as stable, as the scenario where each nation was given six missiles, each of which could destroy one missile silo, though at a higher armament level. [Ref. 49] Of course the ultimate arms control aim is stated as follows:

> We seek US-Soviet force configurations that are both crisis stable, that is, there is no incentive for either side to strike first, even during deep crisis, and arms race stable, that is these force structures are such they do not encourage either side to engage in successive rounds of spiralling weapons deployments [Ref. 2:p. 150].

Strategic force survivability will enhance stability and deterrence. The utility of such force planning is clear and predictable. The present administration has sought to increase not only the numbers of U.S. forces and their chance of surviving a Soviet strike, but also their destructive capability, endurance, and responsiveness [Ref. 51].

> It is, however obvious that not every way of decreasing a country's strategic force vulnerability can contribute to the stability of deterrence. In theory, a very radical and comprehensive increase in the survivability of the forces of one side is tantamount to an increase in the exposure of the other side's forces. The party that feels it has been "left behind" would have to take urgent steps to catch up in second-strike force survivability or revert to other measures designed to restore the mutuality of deterrence. Certain ways of misleading the opponent as to the real balance of forces also belong to these methods of epsuring stability while, in fact, undermining it. [Ref. 50:p. 87]

The above quote brings the topic of SDI to mind. This thought must be placed in context. The Soviets have been conducting similar work over a longer period of time with greater monetary investments. The feasibility and deployment of SDI technology might be classified as a radical breakthrough.

> Only radical breakthroughs can be truly destabilizing. Most experts point first to the possibility of a qualitative leap in defensive strategic systems, the development of which has long lagged behind that of offensive systems. [Ref. 50:p. 87].

The possibility of the Soviets achieving such a breakthrough first must in the United States eyes pose a condition of the greatest concern, on the other hand if the United States were first to deploy these advanced defensive technologies it would gain a vast amount of deterrence power, indeed, the most powerful type of deterrence, that of deterrence by denial. Deterrence by denial is the most powerful form of deterrence as the following quote illustrates.

> ...the first distinction is between "deterrence by threat of retaliation" and "deterrence by denial". The former conveys to the enemy the idea that we cannot prevent him from destroying what he wishes to destroy, but we can make him wish he had never done so. The latter conveys the idea to the enemy that, despite his best efforts , he would fail to achieve his objective. [Ref. 20:p. 13].

It is obvious which deterrent form is better.

The discussion of stability and how survivability affects it must naturally lead to a discussion of the strategic doctrine of a nation. This paper has introduced some of the current strategic doctrinal concepts. The next section will review some of these concepts in more detail and suggest what type of doctrinal approach the United States should take in the future.

D. BALANCED OFFENSIVE AND DEFENSIVE STRATEGIC DOCTRINE

The research that has led to the writing of this paper has convinced the author that the United States needs a balanced deterrent policy. A balanced strategic strategy would be based on denial deterrence and have both offensive and defensive capabilities. Those capabilities should be developed to the extent that any offense strike by the Soviets would be an

unsuccessful attack, the United States being able to follow up such provocations with retaliation of an order that could if desired destroy the Soviets strategic forces and other Soviet valued targets. Ideally, if the defensive system was significantly ironclad, punitive retaliation or the idea of punitive deterrence would not have to be resorted to.

The primary virtues of denial over punitive deterrence are in the fact that denial provides for damage limitation in two ways. First, by protection against and also by attrition of incoming offensive weapons [Ref. 52]. This new idea has come to take its place among the three major schools of strategic thought that are alive today. These being:

1. MAD
2. Counterforce or Countervalue
3. A Balanced offensive-defensive approach

MAD as you will recall from the previous discussions comes as a result of each side possessing nuclear retaliatory forces and vulnerable homelands. The problem with MAD is that it assumes people will act rationally. If war does break out there are limited options in escalations. It is interesting to note that Japan is said to have entered World War II as a result of feeling they had nothing to loose as their culture was on the verge of economic collapse. Lastly, MAD fails as a strategic doctrine as it does not meet the broad range of deterrence responsibilities that the United States is faced with today. [Ref. 52:p. 168]

> The Soviets have made clear through their actions that they reject the Western doctrine of mutually assured destruction (MAD) and reject the notion that nuclear war is suicide [Ref. 46:p. 31].

It should also be remembered that MAD was also an economic strategy, in that it was easier and took less missiles to hold the USSR's populace hostage then to

try to target and destroy military targets. MAD, however, still exists as a strategic line of thought for some people. People often support it today by pointing to the fact that MAD from its conception has "worked", in the sense that the United States has not experienced a nuclear war. More thoughtful people would hold this is a "high risk, all-or-nothing strategy. As long as it works it is fine, but if it fails it guarantees apocalypse. [Ref. 34:p. 106]

Advances in the technological attributes and U.S. strategic force structure allowed for the feasibility of a counterforce strategy. Counterforce targeting was a moral and conceptual step up in strategic defensive doctrine. The assumptions that form the basis for a counterforce targeting strategy are as follows:

1. An enemy is deterred by your ability and will to defeat him militarily on the battlefield.
2. Decisionmaking does not depend a rational decision making model since it is the ability to defeat the enemy that deters his aggression.
3. Targeting is based on targeting the enemy's means to achieve his objectives.
4. Escalation is not necessarily automatic therefore, credible deterrence requires flexibility, controllability, and selectivity.
5. Nuclear superiority if it can be achieved is meaningful as forces over and above those needed for "assured destruction" can be applied toward

threatening military defeat should deterrence fail. [Ref. 53]

Along with the technology that allowed accurate targeting came an ability to support a Counterforce strategy as new command, control and communication systems developed. [Ref. 20:p. 3] These technological changes as well as others saw a natural transition from MAD to the concept of flexible response that in its refined state became the counterforce doctrine the U.S. has today. A doctrine which is more in harmony with the capabilities of the nations strategic weaponry, and C-cubed capabilities.

Today, many scholars hold that the United States is seeing another natural transition. A transition into a balanced offensive-defensive strategy that can be technologically supported in terms of progress with SDI.

A Congressional Budget Office report stated the transition this way:

> The United States is currently engaged in substantial expansion and modernization of the nation's strategic nuclear forces. Those efforts have been accompanied by a revelation of military doctrine that would govern use of nuclear weapons in the event of attack. That evolving new doctrine implies that Soviet aggression can no longer be deterred by a U.S. arsenal that is only capable of prompt and large-scale retaliation, but must also be prepared to sustain nuclear combat of various scales and durations. [Ref. 18:p. iii]

They went on to say:

> The now superseded doctrine, centered around the concept of "mutually assured destruction" - deterrence must derive, it is argued, from the United States' ability to deal with a wide range of potential threats, with responses tailored to the provocation [Ref. 18:p. xi].

The US defense community with respect to its strategic national security missions should recognize frankly the domain of uncertainty that it operates in. It is true that DoD is tasked with the mission to deter

nuclear war and, if need be, conduct military operations, in a situation for which there is no close precedent. It is difficult to affirm with confidence that careful postural and SIOP design will have any marked effect upon the quality of pre- and intra- war deterrence, or even upon the outcome of a general war nevertheless planning is considered essential. [Ref. 13:p. 189]

> Regardless of the SIOP design preferred, there is an absolute need for the United States to be able to limit damage to itself. Indeed,a good deal of the potential value of a well-designed nuclear employment policy will be negated, or undermined, if American society is totally in a hostage status. [Ref. 54]

This ultimate need for damage limitation is today only answered in the prospects of SDI. This is especially true when one considers the following quote found in Soviet Military Strategy which says;

> ...as in most Soviet literature as well, there are not to be found signs of serious professional interests in concepts like controlled response and restrained nuclear targeting, which have been discussed in the West [Ref. 50:p. 277].

The above quote seems to suggest the Soviets initiation of nuclear war would take on a massive rather than controlled nature. Thus when the United States started shifting, in the 1970's from deterrence to a "warfighting" or counterforce strategy, it was based upon a realization that if deterrence fails you have to be able to fight. The policy however did not go far enough to ensure protection or some damage limitation of the United States. In fairness it probably went as far as technology would then allow. United States' doctrine during this transition has emphasized the capability for limited strategic options, countermilitary and counterpolitical control targeting, postattack continuity of government, and the potential for waging a prolonged nuclear conflict. Thus the

warfighting charge has risen out of the targeting policy used to support the strategic doctrine of counterforce.

The essential need for damage limitation and the counterforce strategy go against the MAD concept approach which envisages deterrence to be based upon mutual societal vulnerability [Ref. 55]. These policies do however describe the adequate approach to take to ensure deterrence, today. The U.S. must consider strategic defensive forces and damage limitation. Such defensive concepts need to be balanced with offensive capabilities of the present counterforce strategic force structure.

This balanced strategy is available to minimize the vulnerability of the American homeland and grant success to any retaliatory strike requirement. It should be noted that a defended US would ensure the US standing by its allies more closely. A balanced deterrent based upon a mix of offensive and defensive forces would make it much harder for the Soviets to upset the "correlation of forces" during the first phase of a central nuclear war.

Arms control can do much to smooth the transition of the United States into a balanced offensive-defensive strategic defense if properly conceived and negotiated.

It was the arms control community that initially sought the creation of defensive weapons so as to reduce the need for vast amounts of offensive weapons. That concept proved to be unrealistic, as technology could not support an effective defensive system. Today, SDI promises to do what was envisioned years ago, that of reducing the worth of offensive weapons and hopefully as a result, the numbers kept. Indeed,

SDI might be better if it proves initially to be good only against limited attacks (i.e., light ones), or accidental launchings and therefore cannot easily be considered by the Soviets as a part of U.S. offensive strategy.

Some critics oppose SDI on the basis that the US has abandoned deterrence for defense. This is wrong, as there is no choice between defense and deterrence as defense itself deters and in essence a defense fortifies deterrence in a way that can actually reduce the risks of war. SDI therefore should not be considered a "bargaining chip" as SDI could actually lower the value of offensive weapons. Even at the time of Secretary of Defense McNamara the value of a defense system was seen. McNamara was quoted as follows:

> It is important that none of the (ABM) systems at the present or foreseeable state of the art would provide an impenetrable shield over the United States. Were such a shield possible, we would certainly want it--and we would certainly build it....If we could build and deploy a genuinely impenetrable shield over the United States, we would be willing to spend not $40 billion (in 1967 dollars!) but any reasonable multiple of that amount that was necessary. The money in itself is not the problem; the penetrability of the proposed shield is the problem. [Ref. 42:p. 148]

Thus defensive emphasis would be preferable to the existing nuclear hostage relationship between superpowers.

SDI could also act as insurance for the United States against the Soviets cheating, as any offensive arms reductions makes the threshold of cheating more important. It is this threshold of cheating that forms the last area of interest in considering the realm of arms control.

E. VERIFICATION AND COMPLIANCE

Soon after being elected, President Reagan reaffirmed the necessary requirements for successful arms control initiatives. He pledged his administration would in arms control negotiations seek for:

1. equality,
2. substantial reductions,
3. stability,
4. enhanced security, and
5. effective verification.

There is great reason that verification was placed in the above list of requirements. President Reagan's Administration has placed great emphasis on this issue as it relates to arms control issues. It has grown to take on new meaning and any discussion of verification now also includes realistic thoughts reference compliance. With the introduction of more smaller and dual capable weapons, such as cruise missiles, verification will become increasingly harder and counting ceilings and sub-ceilings like those found in SALT I & II could become meaningless. This reality exists even in the face of anticipated technical advances in national technical means of intelligence gathering.

Verification of arms control agreements acts as a deterrent to the extent that a violator is concerned with abiding by signed agreements even if that might affect the national self-interest, or fears based on the consequence of violation detection. If there is no fear of detection or the consequences of detection then national selfinterest may cause a nation to violate agreements which they have entered into. There might also be reason to enter agreements with the

foreknowledge that a nation does not intend to abide by it. The Reagan Administration has charged and substantiated these very types of violations of arms control agreements that the Soviets have entered into with the United States. Thus today verification issues must incorporate a response to violations to be effective.

In entering into arms control agreement a nation needs to know their capabilities of detection and also what that nation will be politically, legally and militarily able to respond to. Recent experience with the Soviets has shown that they are deterred from violations only if the actions upon discovery might be so disastrous as to outweigh an advantage of noncompliance. The bottom line is that a nation contemplating a violation may not be deterred if it can discourage, circumvent or absorb the reaction of discovery of a violation. In order to deal with Soviet arms control violations the United States must first be willing to expose the violation. This may not be an easy decision as acknowledging violations may jeopardize intelligence sources which could have greater consequences then the violation itself. If this hurdle is passed, a violation may not be exposed because the United States is not willing politically, militarily or for some other reason to respond to the violation. A unique reality of today is also a requirement to consult with a nation's allies, which likewise may be determined to be unwise for a variety of reasons. Thus the reader can see that verification is a complex issue. Verification exists to substantiate that agreements are being complied with

> ...for one side to adhere and for the other side not to adhere does not constitute real arms control at all. Rather it constitutes a dangerous form of

unilateral disarmament in the disguise of bilateral arms control [Ref. 56].

In such a state the arms control process soon breaks down. The President's Report to Congress of Soviet Non-Compliance forms a basis for this break down or at least poses a caution sign in dealing with the Soviets. The reader may still question why there should be compliance problems when arms control agreements have been signed. A review of the arms control process lends clarity and possibly an answer to this question.

First consider why a nation may be prompted to initiate an arms control proposal. Certainly, there may be legitimate interest but there may also be propaganda motives, a desire to play to or mold the feelings of the public and political forces in an opposing nation. A proposal might pacify domestic concerns or be a part of an image building campaign to name just a few reasons why a nation may initiate arms control initiatives. In the arms control negotiating phase arms control may be pursued for reasons other than true arms control. This phase provides excellent intelligence gathering potential, a rare opportunity to carry out an active disinformation campaign. The process can also buy valuable time lulling opponents into a false sense of security, found in the hopes of the arms control proposals themselves. A nation may even conclude an agreement and sign it hoping to codify the status quo, buy time, stop development of technologies by an enemy, etc. Compliance may come about as a way to put resources in other areas, induce reciprocal compliance out of fear of sanctions if violations are discovered or based upon a fundamental belief in the agreement and the responsibilities of signing an accord. With regards to the Soviets it

seems their greatest interest in arms control has been during periods of intense threat. These periods and issues are noted:

1. 1927-30 Japanese and German threat
2. Early 1970s US ABM threat
3. Late 1980s SDI threat. [Ref. 57]

The United States should proceed with arms control initiatives with a full understanding of the Soviet Union's record of compliance to arms control agreements. The United States should also realize that upon recognizing arms control violations there are but five recourses:

1. Do nothing.
2. Threaten to withdraw/abrogate the treaty if the violation is not resolved.
3. Abrogate the treaty or the violated portions of the agreement.
4. Take other appropriate sanctions.
5. Proceed with a military build up to offset the advantage gained by any violation. [Ref. 57]

There is no question that arms control can promote US security by placing limits on Soviet forces, making the military's job of predicting Soviet abilities easier. The problem for policymakers is to determine how much risk of non-compliance can be taken to achieve what is signed in the formal agreement. Ultimately it is a total package that must be weighed. Stated in another manner; arms control requires a "systems approach".

F. REFLECTIONS

The term reflection is appropriate to summarize this paper as it has taken an inter-disciplinary approach (National Security Affairs and Joint Command, Control and Communication perspectives)--analyzing the role and parameters those in the military command establishment should have with regards to arms control initiatives as they affect U.S. strategic nuclear policy.

Ideally the reader now has an appreciation of the complexity of issues that surround arms control issues. This understanding should also reveal how uniquely qualified the military is to handle a larger role in the arms control community. Such a role would bring about the harmony of national security issues and those of arms control.

The cruise missile case study as well as the C-cubed analysis should have demonstrated the virtue of a systems approach to arms control issues. Issues that must never lead national security policy but be supportive of the Nation's strategic doctrine. One should also appreciate the need for evolutionary or, if possible, revolutionary change in strategic doctrine answering changes in technology and stability issues. This is not to say that technology must lead the formation of arms control processes, on the contrary the technological issue is just one of many that the political arms control environment must deal with. As presented earlier in this paper, the essential nature of war is a continuation of politics and does not change with changing technology or armaments. Arms control must be based on political agreements not merely technical discussions before arms control can be successful. Any arms control agreement should avoid constraints in detail on force structures and should

not limit measures which may enhance survivability. Each side must be able to unilaterally decide how to increase stability in the context of its strategic defense needs.

The United States must align its strengths against enduring Soviet weaknesses and adopt competitive strategies to force the Soviets to perform less efficiently or effectively militarily, thus making the Soviets more willing to seek and abide in meaningful arms control agreements.

> The warning must be that with the Soviets pursuing political and military objectives in arms control agreements, we have to continue a dual track concept of negotiation, as well as weapon development and enhancement [Ref. 8:p. 18].

The author quotes the conclusions of another contemporary author:

> In sum, the trends in relative military strength are such that, unless we move promptly to reverse them, the United States is moving toward a posture of minimum deterrence in which we would be conceding to the Soviet Union the potential for a military and political victory if deterrence failed. While it is probably not possible and may not be politically desirable for the Untied States to strive for a nuclear-war-winning capability, there are courses of action available to the United States whereby we could deny to the Soviets such a capability and remove the one-sided instability caused by their throw-weight advantage and by their defense program. [Ref. 27:p. 113]

To the author the most promising future course available to the United States is one that develops SDI technologies and with them forms a balanced defensive-offensive strategic defense doctrine. That future will not be secured without a greater military involvement in arms control issues.

> It is clear that (the involvement of) the Joint Chiefs of Staff and senior elements of the armed forces must be given a larger role in arms control planning and the negotiations themselves. This not only means giving the armed services a larger advisory capacity, but greater responsibility in the actual conduct of negotiations as well. Greater military responsibility for arms control would foster greater harmony between defense and arms control objectives. [Ref. 27:p. 205]

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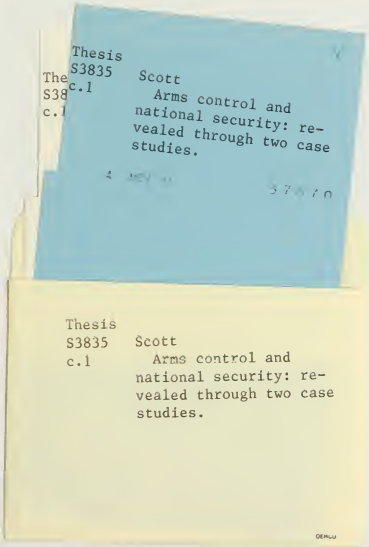
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